

AD-A080 594

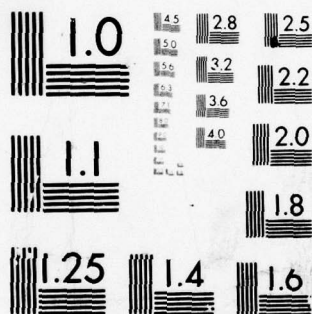
FEDERAL AVIATION ADMINISTRATION WASHINGTON DC OFFICE --ETC F/G 1/2  
FAA STATISTICAL HANDBOOK OF AVIATION, CALENDAR YEAR 1978.(U)  
DEC 78 P BEARDSLEY

(UNCLASSIFIED)

1 OF 2

AD  
A080594

NL



MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS-1963-A

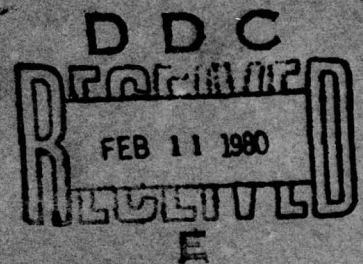


**LEVEL** *H* *12*

# FAA STATISTICAL HANDBOOK OF AVIATION

**CALENDAR YEAR 1978**

AD A 080 594



**DDC FILE COPY**

This document has been approved  
for public release and sale in  
distribution is unlimited.

**U.S. DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION**

80 2 8 038

Technical Report Documentation Page

1. Report No.		2. Government Accession No.		3. Recipient's Catalog No. 11 31 Dec 78	
4. Title and Subtitle 6 FAA Statistical Handbook of Aviation, Calendar Year 1978.				5. Report Date December 31, 1978	
				6. Performing Organization Code AMS-220	
7. Author(s) 10 Patricia Beardsley				8. Performing Organization Report No. 12 159	
9. Performing Organization Name and Address Federal Aviation Administration Office of Management Systems 800 Independence Avenue, SW Washington, D.C. 20591				10. Work Unit No. (TRAIS)	
				11. Contract or Grant No.	
12. Sponsoring Agency Name and Address Department of Transportation Federal Aviation Administration 800 Independence Avenue, SW Washington, D.C. 20591				13. Type of Report and Period Covered 9 Annual rept., Calendar Year 1977	
				14. Sponsoring Agency Code FAA	
15. Supplementary Notes					
16. Abstract This report presents statistical information pertaining to the Federal Aviation Administration, the National Airspace System, Airports, Airport Activity, U.S. Civil Air Carrier Fleet, U.S. Civil Air Carrier Operating Data, Airmen, General Aviation Aircraft, Aeronautical Production and Exports, Aircraft Accidents, and a Glossary of the terms used in this publication.					
17. Key Words Air carrier, airport, air traffic, airmen, aircraft accidents, general aviation, aircraft production.			18. Distribution Statement Document is available to the public through the National Technical Information Service, Springfield, Virginia 22151		
19. Security Classif. (of this report) Unclassified		20. Security Classif. (of this page) Unclassified		21. No. of Pages 22. Price	

# **FAA Statistical Handbook of Aviation**

**CALENDAR YEAR 1978**



Availability is unlimited. Document may be released to the  
National Technical Information Service  
Springfield, Virginia 22161, for sale to the public

**U.S. DEPARTMENT OF TRANSPORTATION  
Federal Aviation Administration**



## PREFACE

The FAA Statistical Handbook of Aviation is published annually by the Federal Aviation Administration (FAA). Its prime purpose is to serve as a convenient source for historical data, and to assist in evaluating progress. This edition contains data on major civil aviation activities for the period ending December 31, 1978.

The handbook should provide a valuable source of information for the Department of Transportation (DOT), operating offices of the FAA, the Civil Aeronautics Board (CAB), and other government agencies, as well as non-government organizations interested in aviation.

Chapter I deals with the FAA and its functions. This section also includes a comparison of the agency's appropriations from fiscal years 1977-1979, and the agency's personnel complement for 6-month intervals from June 30, 1969, to December 31, 1978.

National Airspace System data reflecting the workload of the FAA air traffic facilities--terminal and en route--are contained in Chapter II. This chapter contains air traffic activity reported by FAA-operated airport traffic control towers, air route traffic control centers, and domestic and international flight service stations.

Selected statistics concerning the Nation's Airport Facilities are presented in Chapter III by state within FAA regions. In addition to the total count of these facilities, this chapter includes statistics pertaining to the physical characteristics (paved vs. unpaved runways, lighted vs.

unlighted runways, length of runways, etc.), size of populated areas served, funds allocated for airport development, etc.

Airport activity statistics comprising Chapter IV were prepared from data published in the calendar year 1978 edition of Airport Activity Statistics of the Certificated Route Air Carriers, issued jointly by the CAB and the FAA. In addition, this chapter presents individual passenger and traffic activity data from some of the Nation's international airports.

The U.S. Civil Air Carrier Fleet, as of December 31, 1978, is described in detail in Chapter V. These statistics were developed from Monthly Aircraft/Engine Utilization Reports submitted by the air carrier operators. The aircraft population discussed here is not an inventory of the aircraft owned by the air carriers, but represents the aircraft actually used by the air carrier fleet during the last quarter of calendar year 1978.

U.S. Civil Air Carrier Operating Data--revenue passenger miles flown, available seat-miles and enplanements, revenue ton-miles flown, revenue aircraft miles flown, personnel, payroll, average salary, and operating revenues and expenses of the certificated route air carriers--are presented in Chapter VI. These statistics were obtained from schedules submitted by the certificated route air carriers to the CAB.

The Airmen data shown in Chapter VII were obtained from official airmen certification records maintained by the FAA Aeronautical Center in Oklahoma City, Oklahoma.

Acquisition For	MRS GRAM	<input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>	Availability Codes	Availand/or special	Dist	A
	DOC TAB					
	Unannounced					
	Justification					
By	Distribution/					



# CONTENTS

	<u>Page</u>
Preface . . . . .	111
Illustrations . . . . .	xvii
I. The Federal Aviation Administration . . . . .	1
II. The National Airspace System . . . . .	7
III. Airports. . . . .	17
IV. Airport Activity. . . . .	23
V. U.S. Civil Air Carrier Fleet. . . . .	39
VI. U.S. Civil Air Carrier Fleet Operating Data . . . . .	65
VII. Airmen. . . . .	87
VIII. General Aviation Aircraft . . . . .	101
IX. Aeronautical Production and Exports . . . . .	111
X. Aircraft Accidents . . . . .	119
Glossary. . . . .	133

<u>Table</u>	<u>Page</u>
1.1 FAA Appropriations: Fiscal Years 1977 Through 1979. . . . .	4
1.2 FAA Employees on June 30 and December 31: 1969 Through 1978. . . . .	5
2.1 U.S. Air Route Airway Milage: 1969 Through 1978 . . . . .	8
2.2 FAA Air Route Facilities and Services: 1969 Through 1978. . .	9
2.3 Air Traffic Activity at Air Route Traffic Control Centers, by Aviation Category--Fiscal Years 1974-1978. . . .	10
2.4 Air Traffic Activity at Airport Traffic Control Towers, by Aviation Category--Fiscal Years 1974-1978 . . . .	11
2.5 Air Traffic Activity at FAA Facilities, by Aviation Category--Fiscal Years 1974-1978 . . . . .	12
2.6 Air Traffic Activity at Flight Service Facilities-- Fiscal Years 1974-1978 . . . . .	13

# CONTENTS (Continued)

<u>Table</u>		<u>Page</u>
2.7	Aircraft Contacted at Flight Service Facilities-- Fiscal Years 1974-1978 . . . . .	14
3.1	Airports on Record With FAA: 1969 Through 1978. . . . .	17
3.2	U.S. Civil and Joint-Use Airports, Heliports, Stolports, and Seaplane Bases and Reported Abandonments on Record, by FAA Region and State: December 31, 1978. . . . .	18
3.3	U.S. Civil and Joint-Use Airports, Heliports, Stolports, and Seaplane Bases on Record by Type of Ownership: December 31, 1978. . . . .	19
3.4	U.S. Civil and Joint-Use Airports, Heliports, Stolports, and Seaplane Bases on Record by Length of Longest Runway, by FAA Region and State: December 31, 1978. . . . .	20
3.5	U.S. Civil and Joint-Use Airports, Heliports, Stolports, and Seaplane Bases on Record With FAA by FAA Region and State and Other Areas: December 31, 1969-1978 . . . . .	21
3.6	Airport Development Aid Program Status as of December 31, 1978. . . . .	22
4.1	Certificated Route Air Carriers and Number of Certificated Route Miles Authorized: Calendar Year 1978. . . . .	25
4.2	Domestic Airline Traffic Enplaned at U.S. Stations (Excluding Alaska and Hawaii): 1969 Through 1978. . . . .	26
4.3	American Flag Airline Traffic Enplaned at Territorial U.S. Stations: 1969 Through 1978. . . . .	26
4.4	Domestic Helicopter Traffic Enplaned at U.S. Stations (Excluding Alaska and Hawaii): 1969 Through 1978. . . . .	27
4.5	American Flag Airline Traffic Enplaned at Foreign Stations: 1969 Through 1978 . . . . .	27
4.6	Domestic All-cargo Airline Traffic Enplaned at U.S. Stations (Excluding Alaska and Hawaii): 1969 Through 1978. . . . .	28
4.7	Aircraft Departures, Enplaned Revenue Passengers, and Enplaned Revenue Tons of Cargo and Mail in Total Operations, All Services at Large Air Traffic Hubs: 12 Months Ended December 31, 1978. . . . .	29



# CONTENTS (Continued)

<u>Table</u>	<u>Page</u>
4.8 Aircraft Departures, Enplaned Revenue Passengers, and Enplaned Revenue Tons of Cargo and Mail in Total Operations, All Services at Medium Air Traffic Hubs: 12 Months Ended December 31, 1978. . . . .	31
4.9 Aircraft Departures, Enplaned Revenue Passengers, and Enplaned Revenue Tons of Cargo and Mail in Total Operations, All Services at Small Air Traffic Hubs: 12 Months Ended December 31, 1978. . . . .	33
4.10 Domestic Intercity Passenger-Miles by Mode of Travel and Class of Service: 1969 Through 1978 . . . . .	37
5.1 Composition of the U.S. Air Carrier Fleet by Type of Aircraft and Number of Engines: December 31, 1978 Through 1983 and 1989. . . . .	39
5.2 Composition of the U.S. Air Carrier Fleet by Type of Aircraft: December 31, 1969 Through 1978 . . . . .	40
5.3 Total Aircraft in Operation by the U.S. Air Carrier Fleet by Type of Carrier and by Type of Aircraft: December 1977 and 1978. . . . .	41
5.4 Composition of the U.S. Air Carrier Fleet by Type of Aircraft, Number of Engines, and Model: December 31, 1977 and 1978. . . . .	42
5.5 Aircraft in Operation by Certificated Route Air Carriers by Type of Aircraft and Number of Engines: December 1969 through 1978. . . . .	43
5.6 Aircraft in Operation by Certificated Route Air Carriers by Manufacturer and Model: December 1969 through 1978 . . . . .	44
5.7 Total Flight Time by Type of Aircraft in the U.S. Air Carrier Fleet: 1977 and 1978. . . . .	45
5.8 Total Fixed-Wing Aircraft in Certificated Route Air Carrier Operations by Carrier and by Engine Type: December 31, 1978. . . . .	47
5.9 Four-Engine Turbine-Powered Fixed-Wing Aircraft in Certificated Route Air Carrier Operations by Carrier and by Manufacturer and Model: December 31, 1978. . . . .	49

# CONTENTS (Continued)

<u>Table</u>	<u>Page</u>
5.10 Two- and Three-Engine Turbine-Powered Fixed-Wing Aircraft in Certificated Air Carrier Operations by Carrier and by Manufacturer and Model: December 31, 1978. . . . .	50
5.11 Piston-Powered Aircraft in Certificated Route Air Carrier Operations by Carrier and by Manufacturer and Model: December 31, 1978. . . . .	51
5.12 Helicopters in Certificated Route Air Carrier Operations by Carrier and by Manufacturer and Model: December 31, 1978. . . . .	52
5.13 Aircraft in Operation by Supplemental Carriers by Type of Aircraft: December 31, 1969 Through 1978. . . . .	53
5.14 Aircraft in Operation by Supplemental Carriers by Carrier and by Manufacturer and Model: December 31, 1978. . . . .	54
5.15 Aircraft in Operation by Commercial Carriers by Type of Aircraft: December 31, 1969 Through 1978. . . . .	55
5.16 Aircraft in Operation by Commercial Air Carrier Operators by Carrier and by Type of Aircraft December 31, 1978. . . . .	56
5.17 Aircraft in Operation by Commercial Operators by Manufacturer and Model: December 31, 1977 and 1978. . . . .	57
5.18 Aircraft in Operation by Air Taxi Operators: December 31, 1978. . . . .	58
5.19 Aircraft in Operation by Air Taxi Operators by Manufacturer and Model: December 31, 1977 and 1978 . . . . .	62
5.20 Aircraft in Operation by Air Travel Clubs: December 31, 1978. . . . .	63
6.1 Traffic Data, Scheduled Service of Certificated Route Air Carriers: 1977 and 1978 . . . . .	66
6.2 Traffic Data, Nonscheduled Service of Certificated Route Air Carriers: 1977 and 1978 . . . . .	67
6.3 Revenue Aircraft Departures, Miles and Hours Flown, and Average Speed in Scheduled Domestic Service of the Passenger/Cargo Certificated Route Air Carriers: 1969 Through 1978. . . . .	67

# CONTENTS (Continued)

<u>Table</u>	<u>Page</u>
6.4 Revenue Aircraft Departures, Miles and Hours Flown, and Average Speed in Scheduled International/Territorial Service of the Passenger/Cargo Certificated Route Air Carriers: 1969 Through 1978 . . . . .	68
6.5 Total Ton-Miles Available in All Services of the United States Air Carriers: 1969 Through 1978. . . . .	68
6.6 Revenue Ton-Miles Flown in all Services by Certificated Route Air Carriers of the United States: 1969 Through 1978. . . . .	69
6.7 Total Ton-Miles Available in Scheduled Service of the Certificated Route Air Carriers: 1969 Through 1978. . . . .	69
6.8 Revenue Ton-Miles Flown in Scheduled Service of the Certificated Route Air Carriers: 1969 Through 1978. . . . .	70
6.9 Revenue Ton-Miles Flown in Scheduled Domestic Passenger/Cargo Service of the Certificated Route Air Carriers: 1969 Through 1978. . . . .	71
6.10 Revenue Ton-Miles Flown in Scheduled International/Territorial Service of the Passenger/Cargo Certificated Route Air Carriers: 1969 Through 1978 . . . . .	72
6.11 Revenue Ton-Miles Flown in Scheduled Domestic Services of All-Cargo Certificated Route Air Carriers: 1969 Through 1978. . . . .	73
6.12 Revenue Ton-Miles Flown in Scheduled International/Territorial Service of the All-Cargo Certificated Route Air Carriers: 1969 Through 1978 . . . . .	74
6.13 Domestic Freight Revenue Ton-Miles Flown, by Type of Carrier: 1969 Through 1978. . . . .	74
6.14 U.S. Mail and Air Cargo Revenue Ton-Miles Flown in Scheduled Domestic Service of the Passenger/Cargo Certificated Route Air Carriers: 1969 Through 1978 . . . . .	75
6.15 U.S. and Foreign Mail and Air Cargo Revenue Ton-Miles Flown in Scheduled International/Territorial Service of the Passenger/Cargo Certificated Route Air Carriers: 1969 Through 1978. . . . .	75



# CONTENTS (Continued)

<u>Table</u>	<u>Page</u>
6.16 Revenue Passenger Enplanements in Scheduled Service of the Certificated Route Air Carriers: 1974 Through 1978. . . . .	76
6.17 Passenger Operations in Scheduled Domestic Service of the Certificated Route Air Carriers: 1969 Through 1978. . . . .	76
6.18 Passenger Operations in Scheduled International/Territorial Service of the Certificated Route Air Carriers: 1969 Through 1978. . . . .	77
6.19 Coach Plus Economy Passenger Operations in Scheduled Domestic Service of the Passenger/Cargo Certificated Route Air Carriers: 1969 Through 1978 . . . . .	77
6.20 Coach Plus Economy Passenger Operations in Scheduled International/Territorial Service of the Passenger/Cargo Certificated Route Air Carriers: 1969 Through 1978. . . . .	78
6.21 Revenue Aircraft Miles Flown in All Services of the Certificated Route Air Carriers: 1969 Through 1978. . . . .	78
6.22 Revenue Aircraft Miles Flown in Domestic Operations of the Certificated Route Air Carriers: 1969 Through 1978. . . . .	79
6.23 Revenue Aircraft Miles Flown in International/Territorial Operations of the Certificated Route Air Carriers: 1969 Through 1978. . . . .	79
6.24 Revenue Aircraft Miles Flown in Scheduled Domestic Service of the Certificated Route Air Carriers by Type of Carriers: 1969 Through 1978. . . . .	80
6.25 U.S. Supplemental Air Carrier Operations: 1976 Through 1978 .	81
6.26 Operating Revenue of Scheduled Domestic Passenger/Cargo Operators, Certificated Route Air Carriers: 1969 Through 1978. . . . .	82
6.27 Operating Expenses of Scheduled Domestic Passenger/Cargo Operators, Certificated Route Air Carriers: 1969 Through 1978. . . . .	83
6.28 Operating Revenue of Scheduled International/Territorial Passenger/Cargo Operators, Certificated Route Air Carriers: 1969 Through 1978 . . . . .	84

# CONTENTS (Continued)

<u>Table</u>	<u>Page</u>
6.29 Operating Expenses of Scheduled International/Territorial Passenger/Cargo Operators, Certificated Route Air Carriers: 1969 Through 1978 . . . . .	85
7.1 Active Airmen Certificates Held: December 31, 1969-1978 . . .	88
7.2 Women Actively Engaged in Aviation: December 31, 1969-1978. .	89
7.3 Airmen Certificates Issued, by Category: Calendar Years 1974-1978. . . . .	90
7.4 Instrument Ratings Issued: 1978 and 1977. . . . .	91
7.5 Instrument Ratings Held, by Class of Certificate: December 31, 1977 and December 31, 1978. . . . .	92
7.6 Active Helicopter Pilots by Class of Certificate: December 31, 1978. . . . .	93
7.7 Active Glider Pilots by Class of Certificate: December 31, 1978. . . . .	94
7.8 Active Helicopter and Glider Pilots: December 31, 1974-1978 .	95
7.9 Total and Instrument Rated Pilots: December 31, 1974-1978 . .	95
7.10 Active Pilot Certificates Held, by Category and Age Group of Holder: 1978 and 1977. . . . .	96
7.11 Active Nonpilot Certificates Held, by Category and Age Group of Holder: 1978 and 1977. . . . .	97
7.12 Active Pilots and Flight Instructors by FAA Region and State: December 31, 1978. . . . .	98
7.13 Active Nonpilot Airmen Certificates Held by FAA Region and State: December 31, 1978. . . . .	99
8.1 General Aviation Active Aircraft by Primary Use by Aircraft Type: 1977 . . . . .	103
8.2 General Aviation Active Aircraft by Aircraft Type: 1973-1977 .	104
8.3 General Aviation Total Hours Flown by Primary use by Aircraft Type: 1977 . . . . .	105

# CONTENTS (Continued)

<u>Table</u>	<u>Page</u>
8.4 General Aviation Total Hours Flown by Aircraft Type: 1973-1977 . . . . .	106
8.5 General Aviation Active Aircraft Average Flight Hours by Type: 1973-1977. . . . .	107
8.6 General Aviation Active Aircraft and Hours Flown by FAA Region and State: 1977 . . . . .	108
8.7 General Aviation Registered Aircraft: Avionics Equipment by Aircraft Type: 1977 . . . . .	109
9.1 Total Civil Aircraft Production, Weight and Cost: Calendar Years 1969 Through 1978 . . . . .	111
9.2 Total Civil Aircraft Production: Calendar Years 1969 Through 1978 . . . . .	112
9.3 Total Civil Aircraft Production by Type: Calendar Years 1969 Through 1978 . . . . .	113
9.4 Total Civil Rotocraft Production, Weight and Cost: Calendar Years 1969 Through 1978 . . . . .	113
9.5 Fixed-Wing General Aviation Aircraft Production, Weight and Cost: Calendar Years 1969 Through 1978. . . . .	114
9.6 Total General Aviation Aircraft Production and Weight: Calendar Years 1969 Through 1978 . . . . .	114
9.7 Fixed-Wing Transport-Type Aircraft Production, Weight and Cost: Calendar Years 1969 Through 1978. . . . .	115
9.8 Total Transport-Type Aircraft Production, by Type and Weight Calendar Year 1978 . . . . .	115
9.9 Value of Backlog Orders, Net New Orders, and Net Sales of Complete Aircraft, Aircraft Engines, and Propellers: Calendar Years 1969 Through 1978 . . . . .	116
9.10 Average Employment and Earnings in U.S. Aircraft Industry: Calendar Years 1971 Through 1978 . . . . .	117
9.11 United States Exports of Aeronautical Products: Calendar Year 1978 . . . . .	118



# CONTENTS (Continued)

<u>Table</u>		<u>Page</u>
10.1	Aircraft Accidents, Fatalities, and Fatality Rate--U.S. Air Carrier Operations: 1978 . . . . .	121
10.2	Fatal Accidents, Fatalities--U.S. Air Carriers, All Operations 1977 and 1978. . . . .	122
10.3	Aircraft Accidents, Accident Rates and Fatalities--U.S. Air Carrier Operations: 1978 . . . . .	123
10.4	Aircraft Accidents, Accident Rates and Fatalities--U.S. Certificated Route Air Carriers: 1969 Through 1978 . . . .	124
10.5	Aircraft Accidents, Fatalities, and Fatality Rate--U.S. Certificated Route Air Carrier Scheduled Domestic and International Passenger Service: 1969 Through 1978 . . . .	125
10.6	Aircraft Accidents, Fatalities, and Fatality Rate--U.S. Certificated Route Air Carrier Scheduled Domestic Passenger Service: 1969 Through 1978 . . . . .	126
10.7	Aircraft Accidents, Fatalities, and Fatality Rate--U.S. Certificated Route Air Carrier Scheduled International/ Territorial Passenger Service: 1969 Through 1978 . . . . .	127
10.8	Aircraft Accidents, Accident Rates and Fatalities--U.S. Supplemental Air Carriers all Operations: 1969 Through 1978 . . . . .	128
10.9	Aircraft Accidents, Fatalities, and Fatality Rate--U.S. Supplemental Air Carrier Civil and Military Operations: 1969 Through 1978. . . . .	129
10.10	Aircraft Accidents, Fatalities, and Accident Rates--U.S. General Aviation Flying: 1969 Through 1978 . . . . .	130
10.11	Comparative Accident Data: 1969 Through 1978 . . . . .	131
10.12	Aircraft Accidents, Fatalities, and Accident Rates--U.S. Air Taxi: All Operations: 1969 Through 1978 . . . . .	132

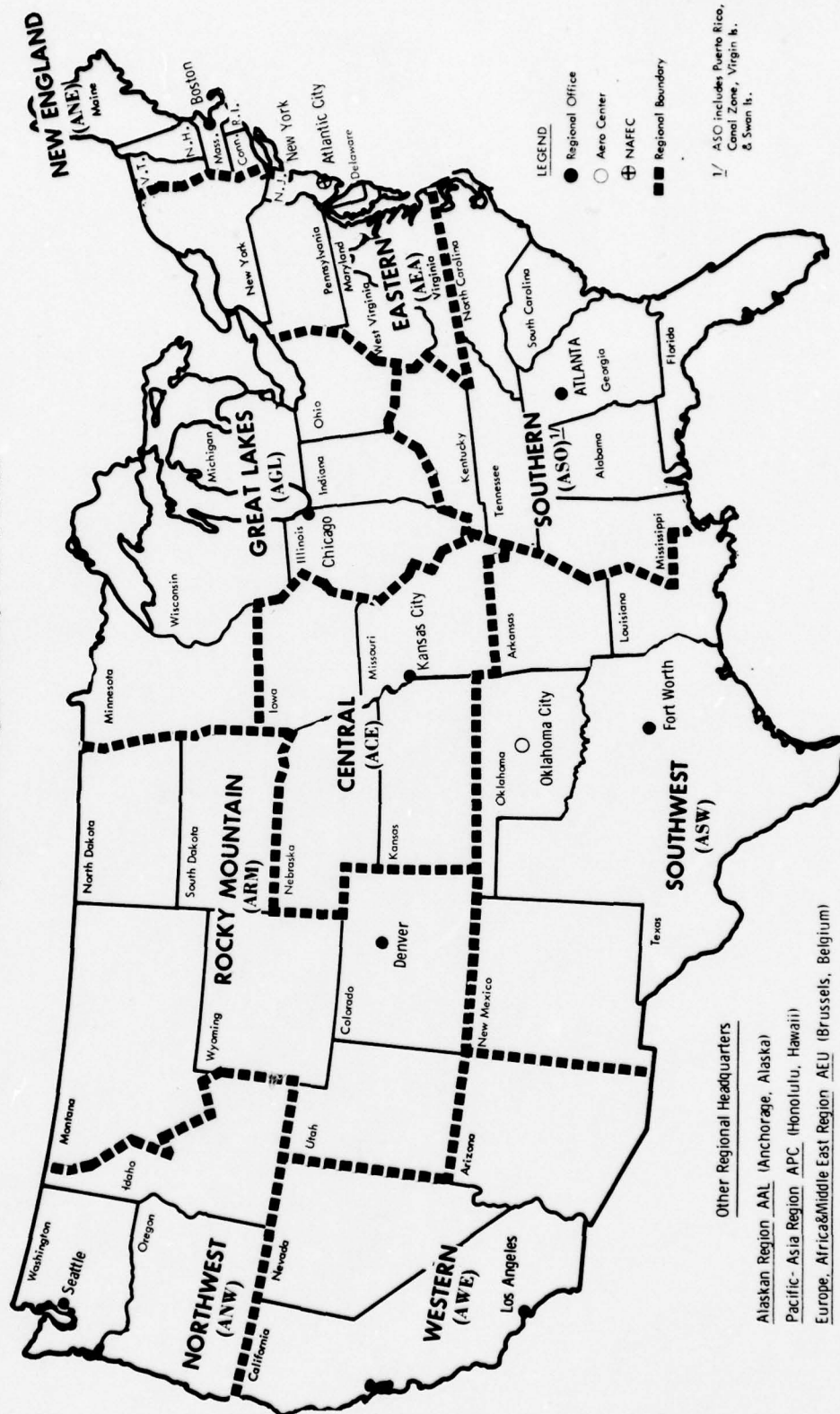
## Illustrations

	<u>Page</u>
FAA Regional Boundaries. . . . .	xvii

Department of Transportation  
Federal Aviation Administration

# FAA REGIONAL BOUNDARIES

Including Locations of Regional Headquarters & Centers





## I. THE FEDERAL AVIATION ADMINISTRATION

The Department of Transportation Act of 1966 established a new executive department known as the Department of Transportation. The general welfare, economic growth, stability, and security of the Nation pointed to the need for the development of national transportation policies and programs effectively utilizing the Nation's transportation resources. The Act provided for inclusion of the Federal Aviation Agency in the Department as the Federal Aviation Administration.

Directed by an Administrator, who is appointed by the President, by and with the advice and consent of the Senate, the FAA has as its primary function fostering the development and safety of American aviation. More specifically, the FAA is responsible for developing the major policies necessary to guide the long-range growth of civil aviation; modernizing the air traffic control system; establishing in a single authority the essential management functions necessary to support the common needs of civil and military operations; providing for the most effective and efficient use of the airspace over the United States; and for the rulemaking responsibilities relative to these functions.

The FAA constructs, operates, and maintains the National Airspace System and the facilities which are a part of the system; it allocates and regulates the use of the airspace; it ensures adequate separation between aircraft operating in controlled airspace; and, through research

and development programs, it provides new systems and equipment for improving utilization of the Nation's airspace.

The Federal-aid Airport Program (FAAP) authorized the FAA to make grants of federal funds to sponsors for airport development and for advanced planning and engineering. Under FAAP, approximately \$1.2 billion was granted by FAA to airport sponsors for airport development purposes from 1947 through 1970. FAAP was superseded by the Airport Development Act of 1970. The FAA maintains and operates Washington National and Dulles International airports. Dulles International is the first airport in the world specifically designed for the use of commercial jet transports.

The FAA prescribes and administers rules and regulations concerning airmen competency, aircraft airworthiness, and air traffic control. It promotes safety through certification of airmen, aircraft, and flight and aircraft maintenance schools. It reviews the design, structure, and performance of new aircraft to insure the safety of the flying public.

Services provided by FAA toward the development of aviation and air commerce include:

- Dissemination of news and information on civil aviation generally.

- Publication of flight information data for pilots.

- Technical aviation assistance to other governments, operation of overseas civil aviation missions, and the aviation training of foreign nationals.

Development of medical standards for airmen through aviation medical research.

Research and development in the field of aeronautics and electronics.

Other activities required to encourage and foster the world-wide development of civil aviation and air commerce.

Policies governing these programs are developed in the Washington headquarters of FAA, and are executed by field employees under the supervision of regional offices strategically located throughout the United States as well as the National Aviation Facilities Experimental Center (NAFEC) at Atlantic City, New Jersey, and the Mike Marononey Aeronautical Center at Oklahoma City, Oklahoma.



TABLE 1.1

## FAA APPROPRIATIONS: FISCAL YEARS 1977 THROUGH 1978

Appropriation	1977	1978	1979	1980
Total	<u>\$2,599,150,000</u>	<u>\$2,775,556,000</u>	<u>\$3,030,165,000</u>	Not available at press time
Operations	1,487,800,000	1,622,700,000(c)	1,681,400,000	
Operations (Airport and Airway Trust Fund)	250,000,000	275,000,000	300,000,000	
Facilities and Equipment (Airport and Airway Trust Fund)	200,000,000	200,000,000(d)	282,297,000(f)	
Grants-in-Aid for Airports (Airport and Airway Trust Fund)	545,000,000(a)	555,000,000	644,140,000	
Research, Engineering and Development (Airport and Airway Trust Fund)	74,350,000	80,800,000	75,100,000	
Operation and Maintenance				
Metropolitan Washington Airports	<u>21,500,000</u>	<u>22,293,000</u>	<u>23,858,000</u>	
Washington National Airport	10,954,100	11,278,400	12,123,000	
Dulles International Airport	10,545,900	11,014,600	11,734,900	
Construction				
Metropolitan Washington Airports	5,000,000	5,500,000	5,000,000	
Facilities, Engineering, and Development	15,500,000(b)	14,263,000(e)	18,370,000(g)	

(a) Includes \$35,000,000 additional obligatory authority made available by the Economic Stimulus Act, P.L. 95-29.

(e) Does not reflect \$2,350,000 additional obligatory authority transferred from other accounts.

(b) Does not reflect \$1,900,000 additional obligatory authority transferred from other accounts.

(f) Does not reflect \$54,363,000 additional obligatory authority transferred from other accounts.

(c) Does not reflect \$5,600,000 additional obligatory authority transferred from other accounts.

(g) Does not reflect \$145,000 additional obligatory authority transferred from other accounts.

(d) Does not reflect \$9,000,000 additional obligatory authority transferred from other accounts.

TABLE 1.2

FAA EMPLOYEES ON JUNE 30 AND DECEMBER 31: 1969 THROUGH 1978\*

Date	Total Employees	Washington Headquarters**			Other Field
		Total	Washington Stationed	Washington Field	
June 30, 1969 . . . . .	49,106	3,858	2,896	962	45,248
December 31, 1969 . . . . .	48,331	3,774	2,855	919	44,557
June 30, 1970 . . . . .	51,477	3,808	2,838	970	47,669
December 31, 1970 . . . . .	53,125	3,917	2,944	973	49,208
June 30, 1971 . . . . .	54,550	3,807	2,887	920	50,743
December 31, 1971 . . . . .	54,258	3,862	2,951	911	50,396
June 30, 1972 . . . . .	53,330	3,648	2,757	891	49,682
December 31, 1972 . . . . .	52,528	3,598	2,687	911	48,930
June 30, 1973 . . . . .	53,533	3,594	2,713	881	49,939
December 31, 1973 . . . . .	53,068	3,625	2,704	921	49,443
June 30, 1974 . . . . .	55,971	3,981	2,940	1,041	51,990
December 31, 1974 . . . . .	55,259	3,873	2,863	1,010	51,386
June 30, 1975 . . . . .	57,708	3,930	2,956	974	53,778
December 31, 1975 . . . . .	56,761	3,839	2,908	931	52,922
June 30, 1976 . . . . .	59,093	4,064	3,106	958	55,029
December 31, 1976 . . . . .	57,820	4,027	3,052	975	53,793
June 30, 1977 . . . . .	58,581	4,101	3,113	988	54,480
December 31, 1977 . . . . .	57,655	3,799	2,824	955	53,876
June 30, 1978 . . . . .	58,419	3,769	2,810	959	54,650
December 31, 1978 . . . . .	57,028	3,391	2,453	938	53,637

\*Includes all paid civilian employees (full-time, part-time, and intermittent), and military personnel assigned on a reimbursable basis.

\*\*Washington stationed includes only those employees on the Washington headquarters' rolls whose duty station is the District of Columbia. Washington field includes those employees on the Washington headquarters' rolls whose duty stations are outside the District of Columbia, such as Washington National Airport, Dulles International Airport, overseas Civil Aviation Assistance Groups, inspectors stationed at equipment manufacturers' plants, etc.

## II. The National Airspace System

This chapter furnishes terminal and enroute air traffic activity information of the National Airspace System. The data have been reported by the FAA-operated Airport Traffic Control Towers, Air Route Traffic Control Centers, and Flight Service facilities (Flight Service Stations, Combined Station/Towers and International Flight Service Stations). These reports are used as a guide in determining the need for larger or additional facilities, and possible changes in the number of personnel at existing facilities.

Data for towers are reported on Airport Operations and Instrument Approaches Monthly Summary (FAA Form 7230-11). This form contains landings and takeoffs (aircraft operations) reported by the towers by aviation category--air carriers, air taxi, general aviation, and military; instrument operations (IFR landings and takeoffs) and instrument approaches (IFR landings) are also included. Data for Air Route Traffic Control Centers (ARTCC's) are reported on ARTCC Operations and Instrument Approaches Monthly Summary (FAA Form 7230-12). Data contained on this form show departures, overs, and aircraft handled, plus instrument approaches handled by the ARTCC's. Activity of flight service stations, international flight service stations and combined station/towers is submitted on Monthly Activity Record--Flight Service Stations (FAA Form 7230-013). More detailed data pertaining to activity of these facilities may be found in the fiscal year 1978 edition of FAA Air Traffic Activity.



TABLE 2.1

U.S. AIR ROUTE AIRWAY MILEAGE: 1969 THROUGH 1978\*

(Contiguous 48 States)

December 31	Very High Frequency VOR/VORTAC		
	Low Altitude		Jet Routes
	Direct	Alternate	
1969	138,295	32,356	108,171
1970	140,268	33,215	112,662
1971	142,093	33,274	114,373
1972	143,241	33,436	117,417
1973	144,578	32,999	119,672
1974	144,939	32,999	122,372
1975	148,834	32,320	123,258
1976	150,172	31,888	130,160
1977	152,947	31,270	131,968
1978	155,242	31,235	134,709

\* Mileage shown in nautical miles based on National Ocean Survey figures.

TABLE 2.2  
FAA AIR ROUTE FACILITIES AND SERVICES: 1969 THROUGH 1978

December 31	VOR VORTAC	Nondirectional Radio Beacons	Air Route Traffic Control Centers	Airport Traffic Control Towers	Combined Station/ Towers	Flight Service Stations	Inter- national Flight Service Stations	Instrument Landing Systems	Airport Surveillance Radar
1969	947	589	27	281	48	332	8	288	124
1970	964	640	27	288	46	332	8	310	120
1971	980	669	27	347	44	331	8	337	122
1972	991	706	27	355	42	324	7	403	125
1973	995	739	27	403	29	315	7	467	142
1974	1,000	793	27	417	21	320	7	490	156
1975	1,011	848	26	487	21	321	7	580	177
1976	1,020	920	25	488	16	321	7	640	175
1977	1,021(a)	959(b)	25(c)	495(d)	7	319	7	678(e)	182(f)
1978	1,020(a)	988(b)	25(c)	494(d)	6	319	6	698(e)	185(f)

(a) Includes 58 nonfederal and 44 military.

(b) Includes 632 nonfederal and 59 military.

(c) Includes 2 military combined center/radar approach control facilities (CERAP).

(d) Includes 30 nonfederal and 43 military.

(e) Includes 7 Landing Directional Aid (LDA), 53 nonfederal, and 6 military.

(f) Includes 29 military.



TABLE 2.3--AIR TRAFFIC ACTIVITY AT AIR ROUTE TRAFFIC CONTROL CENTERS, BY AVIATION CATEGORY--FISCAL YEARS 1974-1978

	Year	Total		Air Carrier		Air Taxi		General Aviation		Military	
		Total	Annual change	Total	Annual change	Total	Annual change	Total	Annual change	Total	Annual change
<u>IFR Aircraft Handled 1/</u>	1978	28,055,382	+8%	13,642,071	+5%	1,931,216	+19%	7,813,848	+14%	4,168,247	+4%
	1977	25,973,299	**	12,986,985	**	1,639,300	**	6,856,057	**	4,499,957	**
	1976	23,924,963	+1	12,406,660	(*)	1,395,304	+6	5,956,575	+8	4,166,424	-5
	1975	23,585,999	+3	12,370,936	(*)	1,316,590	+23	5,520,551	+9	4,377,922	+1
	1974	22,882,796	(*)	12,399,806	-2	1,070,700	+19	5,082,604	+10	4,329,686	-8
<u>IFR Departures</u>	1978	11,007,775	+8	5,014,806	+5	923,731	+18	3,387,877	+14	1,681,361	+3
	1977	10,178,872	**	4,790,929	**	781,158	**	2,971,633	**	1,635,152	**
	1976	9,403,277	+2	4,616,439	(*)	668,362	+6	2,584,473	+8	1,533,953	-4
	1975	9,258,198	+3	4,623,462	(*)	631,750	+23	2,399,351	+9	1,603,635	-1
	1974	8,962,992	+1	4,636,828	-1	511,765	+18	2,199,364	+10	1,615,035	-8
<u>IFR Overs</u>	1978	6,039,832	+8	3,612,459	+6	83,754	+9	1,038,094	+14	1,305,525	+7
	1977	5,615,555	**	3,405,127	**	76,984	**	912,791	**	1,220,653	**
	1976	5,118,509	+1	3,173,782	+2	58,580	+10	787,629	+9	1,098,518	-6
	1975	5,069,603	+2	3,124,012	(*)	53,090	+13	721,849	+6	1,170,652	+6
	1974	4,956,812	-3	3,126,150	-3	47,170	+31	683,876	+8	1,099,616	-9

1/The number of IFR Departures multiplied by two to account for IFR approaches, plus the number of IFR Overs.

(\*) Less than 0.5 percent.

\*\*Percent change not calculated because of change in fiscal year to October 1 - September 30. Prior to 1977 fiscal year was July 1 - June 30.

TABLE 2.4--AIR TRAFFIC ACTIVITY AT AIRPORT TRAFFIC CONTROL TOWERS, BY AVIATION CATEGORY--FISCAL YEARS 1974-1978

	Year	Total		Air Carrier		Air Taxi		General Aviation		Military	
		Total	Annual change	Total	Annual change	Total	Annual change	Total	Annual change	Total	Annual change
<u>Total Aircraft Operations</u>	1978	67,173,434	+1%	10,063,259	+3%	3,773,484	+14%	50,798,779	(*)	2,537,912	-6%
	1977	66,724,291	**	9,770,137	**	3,296,502	**	50,958,847	**	2,698,805	**
	1976	62,491,505	+6	9,339,479	(*)	2,867,621	+6	47,594,278	+8%	2,690,127	(*)
	1975	58,934,700	+4	9,374,363	-1	2,708,901	+15	44,159,682	+5	2,691,754	-4
	1974	56,845,120	+5	9,476,535	-3	2,351,900	+11	42,202,326	+9	2,814,359	-13
<u>Itinerant Operations</u>	1978	43,562,963	+3	10,063,259	+3	3,773,484	+14	28,515,850	+1	1,210,370	-4
	1977	42,425,767	**	9,770,137	**	3,296,502	**	28,101,396	**	1,257,732	**
	1976	39,660,709	+6	9,339,479	(*)	2,867,621	+6	26,180,772	+8	1,272,837	-1
	1975	37,552,859	+4	9,374,363	-1	2,708,901	+15	24,183,342	+5	1,286,253	-2
	1974	36,067,118	+6	9,476,535	-3	2,351,900	+11	22,922,885	+11	1,315,798	-11
<u>Local Operations</u>	1978	23,610,471	-3	---	---	---	---	22,282,929	-3	1,327,542	-8
	1977	24,298,524	**	---	---	---	---	22,857,451	**	1,441,073	**
	1976	22,830,796	+7	---	---	---	---	21,413,506	+7	1,417,290	+1
	1975	21,381,841	+3	---	---	---	---	19,976,340	+4	1,405,501	-6
	1974	20,778,002	+4	---	---	---	---	19,279,441	+6	1,498,561	-14

(\*) Less than 0.5 percent.

\*\*Percent change not calculated because of change in fiscal year to October 1 - September 30. Prior to 1977 fiscal year was July 1 - June 30.

TABLE 2.5--AIR TRAFFIC ACTIVITY AT FAA FACILITIES, BY AVIATION CATEGORY--FISCAL YEARS 1974-1978

	Year	Total		Air Carrier		Air Taxi		General Aviation		Military	
		Total	Annual change	Total	Annual change	Total	Annual change	Total	Annual change	Total	Annual change
<u>Total Instrument Operations</u>	1978	33,456,726	+6%	10,421,496	+4%	3,066,809	+20%	16,310,259	+8%	3,658,162	-2%
	1977	31,518,742	**	10,053,440	**	2,563,882	**	15,150,698	**	3,750,782	**
	1976	28,097,463	+8	9,461,957	-1	2,156,475	+16	12,754,841	+19	3,724,190	-6
	1975	26,063,156	+8	9,537,250	+1	1,858,651	+29	10,718,382	+17	3,948,873	-2
	1974	24,081,360	+7	9,472,974	-3	1,438,929	+27	9,153,598	+23	4,015,859	-5
<u>Total Instrument Approaches 1/</u>	1978	2,223,426	+25	853,853	+27	285,508	+47	975,766	+20	108,299	+10
	1977	1,776,691	**	670,064	**	194,347	**	813,612	**	98,668	**
	1976	1,671,558	-12	675,213	-16	176,599	-10	706,625	-8	113,121	-8
	1975	1,892,335	+5	803,397	+1	196,820	+18	769,281	+7	122,837	(*)
	1974	1,802,429	-7	791,555	-15	166,225	+1	721,528	+3	123,121	-12
<u>Total Instrument Approaches at Control Facilities</u>	1978	2,049,828	+27	820,143	+28	260,040	+49	868,313	+22	101,332	+10
	1977	1,618,381	**	640,895	**	174,015	**	710,941	**	92,530	**
	1976	1,519,443	-11	640,465	+15	154,909	-7	617,523	-7	106,546	-5
	1975	1,698,432	+3	753,206	+1	166,087	+16	667,136	+5	112,003	-2
	1974	1,644,812	-8	748,951	-16	143,758	+1	637,944	+1	114,159	-12

1/Includes instrument approaches at Air Route Traffic Control Centers.

(\*)Less than 0.5 percent.

\*\*Percent change not calculated because of change in fiscal year to October 1 - September 30. Prior to 1977 fiscal year was July 1 - June 30.



TABLE 2.6--AIR TRAFFIC ACTIVITY AT FLIGHT SERVICE FACILITIES--FISCAL YEARS 1974-1978

	Year	FLIGHT PLANS ORIGINATED					AIRPORT ADVISORIES		PILOT BRIEFS		
		Total	Annual change	IFR-DVFR	Annual change	VFR	Annual change	Total	Annual change	Total	Annual change
<u>Flight Service Stations</u>	1978	9,041,583	+5%	6,369,364	+9%	2,672,219	-3%	3,244,961	+6%	18,230,172	+8%
	1977	8,607,414	**	5,858,565	**	2,748,849	**	3,054,885	**	16,852,412	**
	1976	8,028,349	+2	5,357,865	+4	2,670,484	-2	2,878,486	-3	15,938,507	-1
	1975	7,886,054	+3	5,173,777	+5	2,712,277	(*)	2,964,845	-5	16,072,668	+5
	1974	7,658,941	+8	4,933,104	+11	2,725,837	+3	3,124,909	-18	15,268,816	+5
<u>Combined Station/ Towers</u>	1978	46,739	-27	6,923	-57	39,816	-17	0	0	25,447	-45
	1977	63,932	**	16,054	**	47,878	**	0	0	45,937	**
	1976	96,963	+5	34,212	-3	62,751	+10	0	0	92,979	+5
	1975	92,293	-15	35,098	-12	57,195	-17	0	0	88,245	-17
	1974	109,015	-25	39,808	-29	69,207	-23	0	0	106,161	-37
<u>International Flight Service Stations</u>	1978	462,282	+10	20,166	+13	262,116	+8	1,778	+10	499,914	+31
	1977	420,536	**	177,119	**	243,417	**	1,615	**	382,959	**
	1976	371,799	+3	135,498	+3	236,301	+3	1,205	+12	329,728	-5
	1975	360,434	-1	131,874	-1	228,560	-1	1,071	-19	348,619	-3
	1974	364,873	-29	133,748	-51	231,125	-5	1,329	+50	358,947	+4

(\*)Less than 0.5 percent.

\*\*Percent change not calculated because of change in fiscal year to October 1 - September 30. Prior to 1977 fiscal year was July 1--June 30.

TABLE 2.7--AIRCRAFT CONTACTED AT FLIGHT SERVICE FACILITIES, BY AVIATION CATEGORY--FISCAL YEARS 1974-1978

	Year	Total		Air Carrier		Air Taxi		General Aviation		Military	
		Total	Annual change	Total	Annual change	Total	Annual change	Total	Annual change	Total	Annual change
<u>Flight Service Stations</u>	1978	10,147,333	+1%	401,192	+11%	838,268	+10%	8,382,210	+1%	525,663	-9%
	1977	10,008,516	**	359,899	**	763,995	**	8,308,058	**	576,564	**
	1976	9,577,407	-2	374,170	-11	731,127	+4	7,895,816	-1	576,294	-16
	1975	9,794,845	+1	418,360	-6	699,925	+9	7,988,973	+1	687,587	+2
	1974	9,703,763	+1	442,957	-21	643,049	+2	7,946,718	+3	671,039	-1
<u>IFR-DVFR</u>	1978	1,917,549	+17	318,789	+14	218,344	+26	1,187,224	+21	193,192	-4
	1977	1,637,448	**	279,199	**	173,224	**	984,207	**	200,818	**
	1976	1,525,214	-6	298,600	-12	161,547	-3	859,131	-3	205,936	-8
	1975	1,618,865	+8	339,721	+5	166,969	+17	887,159	+8	225,016	+8
	1974	1,495,105	-1	324,179	+4	142,602	-9	819,284	+1	209,040	-10
<u>VFR</u>	1978	8,229,784	-2	82,403	+2	619,924	+5	7,194,986	-2	332,471	-12
	1977	8,371,068	**	80,700	**	590,771	**	7,323,851	**	375,746	**
	1976	8,052,193	-2	75,570	-4	569,580	+7	7,036,685	-1	370,358	-20
	1975	8,175,980	(*)	78,639	-34	532,956	+6	7,101,814	(*)	462,571	(*)
	1974	8,208,658	+2	118,778	-52	500,447	+6	7,127,434	+3	461,999	+4

(\*)Less than 0.5 percent.

\*\*Percent change not calculated because of change in fiscal year to October 1 - September 30. Prior to 1977 fiscal year was July 1 - June 30.

TABLE 2.7--AIRCRAFT CONTACTED AT FLIGHT SERVICE FACILITIES, BY AVIATION CATEGORY--FISCAL YEARS 1974-1978 - Continued

	Year	Total		Air Carrier		Air Taxi		General Aviation		Military	
		Total	Annual change	Total	Annual change	Total	Annual change	Total	Annual change	Total	Annual change
<u>Combined Station/ Tower</u>	1978	99,784	-38%	1,017	-76%	57,712	-10%	33,356	-59%	7,699	-31%
	1977	160,553	**	4,279	**	64,175	**	80,940	**	11,159	**
	1976	213,670	+6	5,099	+116	55,486	+36	139,079	-2	14,006	-18
	1975	201,725	-16	2,365	-5	40,867	+19	141,494	-23	16,999	-18
	1974	241,484	-27	2,487	-35	34,332	-6	183,931	-29	20,734	-38
<u>IFR-DVFR</u>	1978	4,333	-68	616	-81	1,443	-59	1,134	-76	1,140	-50
	1977	13,717	**	3,248	**	3,507	**	4,666	**	2,296	**
	1976	20,231	+28	4,794	+121	3,645	+240	8,206	-4	3,586	-11
	1975	15,775	-11	2,170	-6	1,072	+103	8,507	-14	4,026	-20
	1974	17,755	-32	2,317	-34	529	-58	9,880	-31	5,029	-30
<u>VFR</u>	1978	95,451	-35	401	-61	56,269	-7	32,222	-58	6,559	-26
	1977	146,836	**	1,031	**	60,668	**	76,274	**	8,863	**
	1976	193,439	+4	305	+56	51,841	+30	130,873	-2	10,420	-20
	1975	185,950	-17	195	+15	39,795	+18	132,987	-24	12,973	-17
	1974	223,729	-27	170	-46	33,803	-4	174,051	-28	15,705	-40

\*\*Percent change not calculated because of change in fiscal year to October 1 - September 30. Prior to 1977 fiscal year was July 1--June 30.



TABLE 2.7--AIRCRAFT CONTACTED AT FLIGHT SERVICE FACILITIES, BY AVIATION CATEGORY--FISCAL YEARS 1974-1978 - Continued

	Year	Total		Air Carrier		Air Taxi		General Aviation		Military	
		Total	Annual change	Total	Annual change	Total	Annual change	Total	Annual change	Total	Annual change
<u>International Flight Service Stations</u>	1978	670,904	+2%	104,468	-13%	228,097	-4%	307,929	+13%	30,410	+20%
	1977	656,683	**	120,170	**	238,397	**	272,870	**	25,246	**
	1976	429,394	+1	87,109	+15	123,059	-5	205,465	(*)	13,761	-10
	1975	~425,767	+22	75,824	+7	129,110	+4	205,467	+45	15,366	+22
	1974	348,945	-9	70,605	-4	124,159	-12	141,620	-7	12,561	-20
<u>IFR-DVFR</u>	1978	143,421	-7	103,906	-12	3,581	-15	29,767	+16	6,167	-4
	1977	155,029	**	118,712	**	4,204	**	25,714	**	6,399	**
	1976	109,160	+14	85,998	+16	3,339	-13	15,656	+19	4,167	-12
	1975	95,775	+15	74,065	+9	3,842	+36	13,135	+57	4,733	+20
	1974	83,342	-8	68,222	-2	2,817	-9	8,368	-24	3,935	-39
<u>VFR</u>	1978	527,483	+5	562	-61	224,516	-4	278,162	+13	24,243	+29
	1977	501,654	**	1,458	**	234,193	**	247,156	**	18,847	**
	1976	320,234	-3	1,111	-37	119,720	-4	189,809	-1	9,594	-10
	1975	329,992	+24	1,759	-26	125,268	+3	192,332	+44	10,633	+23
	1974	265,603	-9	2,383	-36	121,342	-12	133,252	-5	8,626	-8

(\*)Less than 0.5 percent.

\*\*Percent change not calculated because of change in fiscal year to October 1--September 30. Prior to 1977 fiscal year was July 1 - June 30.

### III. AIRPORTS

Data pertaining to U.S. civil and joint-use landing facilities (including airports, heliports, stolports, and seaplane bases) were furnished by the FAA Office of Airports Programs. This information was obtained through physical inspection and mail solicitations, and was reported on the Airport Master Record (Form FAA 5010-1) and FAA Landing Facilities Information Request on Airports, Heliports, Stolports, and Seaplane Bases (Forms 5010-2 and 5010-5).

TABLE 3.1

AIRPORTS ON RECORD WITH FAA: 1969 THROUGH 1978\*

Year	Total	With Runway Lights	With Paved Runways	Airports of Entry
1969	11,050	3,430	3,650	63
1970	11,261	3,554	3,805	61
1971	12,070	3,759	4,176	64
1972	12,405	3,827	4,390	63
1973	12,700	3,880	4,527	60
1974	13,062	3,999	4,716	61
1975	13,251	4,171	4,865	62
1976	13,770	4,362	5,106	76
1977	14,117	4,483	5,313	70
1978	14,574	4,567	5,484	70

\*Includes seaplane bases, heliports, stolports, and military fields having joint civil-military use.



TABLE 3.2

U.S. CIVIL AND JOINT-USE AIRPORTS, HELIPORTS, STOLPORTS, AND SEAPLANE BASES,  
AND REPORTED ABANDONMENTS ON RECORD, BY FAA REGION AND STATE: DECEMBER 31, 1978

FAA Region and State	Total Airport Facilities	Airports	Helicopters	Stolports	Seaplane Bases	Reported Abandonments During Year
Total	14,574	12,006	1,986	46	536	237
United States--total*	14,525	11,972	1,975	46	532	237
New England--total	540	350	115	9	66	15
Connecticut	104	54	42	2	6	3
Maine	157	111	5	2	39	6
Massachusetts	140	82	43	3	12	2
New Hampshire	55	40	9	---	6	1
Rhode Island	23	15	6	---	2	1
Vermont	61	48	10	2	1	2
Eastern--total	1,976	1,448	454	8	66	27
Delaware	32	23	9	---	---	---
District of Columbia	17	2	14	---	1	---
Maryland	148	108	35	3	2	3
New Jersey	263	126	126	---	11	4
New York	498	386	81	1	30	8
Pennsylvania	692	525	147	2	18	9
Virginia	255	219	30	2	4	3
West Virginia	71	59	12	---	---	---
Great Lakes--total	3,011	2,606	290	6	109	39
Illinois	901	756	135	---	10	10
Indiana	317	285	32	---	---	3
Michigan	418	392	16	2	8	7
Minnesota	420	337	14	1	68	4
Ohio	584	494	81	2	7	8
Wisconsin	371	342	12	1	16	7
Central--total	1,322	1,246	63	3	10	26
Iowa	257	245	10	1	1	4
Kansas	372	357	10	1	4	5
Missouri	371	334	31	1	5	12
Nebraska	322	310	12	---	---	5
Southern--total	1,719	1,464	226	4	25	18
Alabama	147	134	13	---	---	---
Florida	454	345	91	1	17	3
Georgia	278	237	39	2	---	8
Kentucky	101	90	11	---	---	---
Mississippi	160	152	8	---	---	1
North Carolina	270	249	19	---	2	4
Puerto Rico	27	16	10	---	1	---
South Carolina	126	116	10	---	---	---
Tennessee	150	123	24	1	2	2
Virgin Islands	6	2	1	---	3	---
Southwest--total	2,178	1,882	263	3	30	42
Arkansas	163	160	1	---	2	8
Louisiana	287	177	89	---	21	7
New Mexico	142	132	10	---	---	2
Oklahoma	288	274	13	---	1	4
Texas	1,298	1,139	150	3	6	21
Rocky Mountain--total	992	893	91	3	5	10
Colorado	272	202	64	2	4	3
Montana	172	168	4	---	---	---
North Dakota	217	214	3	---	---	4
South Dakota	142	138	4	---	---	---
Utah	95	82	11	1	1	2
Wyoming	94	89	5	---	---	1
Western--total	1,151	854	276	6	15	24
Arizona	209	182	25	2	---	2
California	822	570	234	3	15	19
Nevada	120	102	17	1	---	3
Northwest--total	857	686	151	4	16	18
Idaho	190	172	15	---	3	5
Oregon	302	242	55	3	2	8
Washington	365	272	81	1	11	5
Alaskan--total	756	520	42	---	194	18
Pacific--total	72	57	15	---	---	---
Hawaii	56	41	15	---	---	---
N. Mariana Islands	4	4	---	---	---	---
South Pacific**	12	12	---	---	---	---

\*Excludes Puerto Rico, Virgin Islands, N. Mariana Islands, and South Pacific.

\*\*American Samoa, Guam and Trust Territories.

TABLE 3.3

U. S. CIVIL AND JOINT-USE AIRPORTS, HELIPORTS, STOLPORTS, AND SEAPLANE BASES  
ON RECORD BY TYPE OF OWNERSHIP  
DECEMBER 31, 1978

FAA Region and State	Total Facilities	By Ownership		Paved Airports		Unpaved Airports	
		Public	Private	Lighted	Not Lighted	Lighted	Not Lighted
Total	14,574	4,751	9,823	3,645	1,839	922	8,168
United States--total*	14,525	4,720	9,805	3,628	1,823	921	8,153
New England--total	540	142	398	127	106	10	297
Connecticut	104	14	90	27	31	—	46
Maine	157	48	109	26	15	4	112
Massachusetts	140	31	109	41	36	2	61
New Hampshire	55	20	35	15	14	3	23
Rhode Island	23	8	15	8	5	1	9
Vermont	61	21	40	10	5	—	46
Eastern--total	1,976	303	1,673	397	282	120	1,177
Delaware	32	3	29	6	4	10	12
District of Columbia	17	8	9	5	7	—	5
Maryland	148	25	123	35	27	8	78
New Jersey	263	30	233	47	49	13	154
New York	498	74	424	96	74	37	291
Pennsylvania	692	78	614	109	81	41	461
Virginia	255	57	198	70	26	9	150
West Virginia	71	28	43	29	14	2	26
Great Lakes--total	3,011	676	2,335	626	181	253	1,951
Illinois	901	97	804	105	60	59	677
Indiana	317	69	248	84	23	32	178
Michigan	418	134	284	117	20	44	237
Minnesota	420	147	273	91	10	37	282
Ohio	584	126	458	134	53	53	344
Wisconsin	371	103	268	95	15	28	233
Central--total	1,322	449	873	367	76	140	739
Iowa	257	115	142	92	8	50	107
Kansas	372	125	247	94	20	42	216
Missouri	371	116	255	114	31	24	202
Nebraska	322	93	229	67	17	24	214
Southern--total	1,719	709	1,010	649	216	95	759
Alabama	147	95	52	88	19	3	37
Florida	454	126	328	119	65	30	240
Georgia	278	121	157	108	34	8	128
Kentucky	101	55	46	45	21	5	30
Mississippi	160	77	83	67	18	8	67
North Carolina	270	76	194	81	19	24	146
Puerto Rico	27	12	15	10	12	—	5
South Carolina	126	64	62	52	8	14	52
Tennessee	150	78	72	77	20	3	50
Virgin Islands	6	5	1	2	—	—	4
Southwest--total	2,178	641	1,537	625	344	66	1,143
Arkansas	163	76	87	65	16	8	74
Louisiana	287	74	213	69	48	9	161
New Mexico	142	61	81	44	22	1	75
Oklahoma	288	129	159	117	28	11	132
Texas	1,298	301	997	330	230	37	701
Rocky Mountain--total	992	472	520	285	94	84	529
Colorado	272	86	186	67	41	14	150
Montana	172	115	57	61	9	15	87
North Dakota	217	96	121	51	10	22	134
South Dakota	142	75	67	40	4	31	67
Utah	95	58	37	39	19	—	37
Wyoming	94	42	52	27	11	2	54
Western--total	1,151	452	699	322	336	29	464
Arizona	209	97	112	57	35	10	107
California	822	297	525	243	281	16	282
Nevada	120	58	62	22	20	3	75
Northwest--total	857	337	520	185	151	57	464
Idaho	190	128	62	35	24	4	127
Oregon	302	92	210	61	55	20	166
Washington	365	117	248	89	72	33	171
Alaskan--total	756	537	219	47	17	66	626
Pacific--total	72	33	39	15	36	2	19
Hawaii	56	19	37	10	32	1	13
N. Mariana Islands	4	4	—	1	1	—	2
South Pacific**	12	10	2	4	3	1	4

\*Excludes Puerto Rico, Virgin Islands, N. Mariana Islands, and South Pacific.

\*\*American Samoa, Guam and Trust Territories.

TABLE 3.4

U.S. CIVIL AND JOINT-USE AIRPORTS, HELIPORTS, STOLPORTS, AND SEAPLANE BASES  
ON RECORD BY LENGTH OF LONGEST RUNWAY, BY FAA REGION AND STATE: DECEMBER 31, 1978

FAA Region and State	Total	Under 3,000	3,000- 3,999	4,000- 4,999	5,000- 5,999	6,000- 6,999	7,000- 7,999	8,000- 8,999	9,000- 9,999	10,000- & over
Total	14,574	9,265	2,568	1,045	781	311	166	106	64	268
United States--total*	14,525	9,240	2,565	1,041	777	308	163	105	62	264
New England--total	540	379	50	28	39	12	8	3	2	19
Connecticut	104	88	2	6	5	1	1	1	1	1
Maine	157	90	16	14	10	7	3	1	1	16
Massachusetts	140	100	15	5	13	2	2	1	1	1
New Hampshire	55	34	10	1	7	2	1	1	1	1
Rhode Island	23	16	2	2	1	1	1	1	1	1
Vermont	61	51	5	1	3	1	1	1	1	1
Eastern--total	1,976	1,551	204	70	64	25	14	10	8	30
Delaware	32	26	2	2	1	1	1	1	1	1
District of Columbia	17	14	1	1	1	1	1	1	1	1
Maryland	148	119	18	5	3	1	1	1	1	1
New Jersey	263	222	20	5	9	1	2	1	1	2
New York	498	362	55	22	19	8	5	3	4	20
Pennsylvania	692	583	55	18	16	7	3	2	2	6
Virginia	255	182	41	13	11	4	1	3	1	1
West Virginia	71	43	13	4	5	4	2	1	1	1
Great Lakes--total	3,011	2,226	439	110	96	45	24	17	10	44
Illinois	901	792	68	11	12	9	4	2	1	3
Indiana	317	232	52	14	10	3	2	1	2	1
Michigan	418	279	82	16	19	10	7	1	1	4
Minnesota	420	245	81	15	29	11	5	4	3	27
Ohio	584	427	88	38	17	6	1	4	2	1
Wisconsin	371	251	68	16	9	6	5	6	2	8
Central--total	1,322	928	255	58	33	19	12	6	2	9
Iowa	257	175	55	14	3	5	1	2	1	1
Kansas	372	261	69	16	14	2	7	1	1	2
Missouri	371	270	67	10	10	6	2	1	1	5
Nebraska	322	222	64	18	6	6	2	2	1	1
Southern--total	1,719	873	451	162	122	44	22	20	10	15
Alabama	147	52	47	23	13	6	1	2	2	1
Florida	454	263	76	41	33	14	9	7	1	10
Georgia	278	142	79	22	25	5	1	3	1	1
Kentucky	101	59	20	9	6	5	1	1	1	1
Mississippi	160	61	67	15	8	3	2	3	1	1
North Carolina	270	154	69	26	8	7	4	2	1	1
Puerto Rico	27	19	2	2	2	1	1	1	1	2
South Carolina	126	55	42	8	14	2	2	1	2	1
Tennessee	150	66	49	15	13	2	1	2	2	1
Virgin Islands	6	2	1	1	1	1	1	1	1	1
Southwest--total	2,178	1,163	544	209	143	46	31	11	8	23
Arkansas	163	85	41	13	15	7	1	1	1	1
Louisiana	287	174	65	14	14	5	3	1	1	10
New Mexico	142	29	23	32	33	10	10	2	1	3
Oklahoma	288	159	83	18	16	4	3	1	2	2
Texas	1,298	716	332	132	65	20	14	6	5	8
Rocky Mountain--total	992	453	234	145	77	34	19	13	8	9
Colorado	272	122	50	45	27	10	6	7	1	4
Montana	172	65	61	26	10	2	1	2	4	2
North Dakota	217	148	47	12	4	2	2	1	1	1
South Dakota	142	80	35	17	2	5	2	1	1	1
Utah	95	14	23	23	19	8	5	1	1	2
Wyoming	94	24	18	22	15	7	4	2	1	1
Western--total	1,151	646	198	129	78	46	17	12	5	20
Arizona	209	74	46	50	19	9	6	2	1	3
California	822	534	138	56	39	24	6	6	3	16
Nevada	120	38	14	23	20	13	5	4	2	1
Northwest--total	857	590	117	66	48	12	5	2	4	13
Idaho	190	95	42	32	13	2	1	1	2	2
Oregon	302	221	33	20	15	7	1	1	1	4
Washington	365	274	42	14	20	3	3	1	2	7
Alaskan--total	756	408	72	65	77	22	13	11	4	84
Pacific--total	72	48	4	3	4	6	1	1	3	2
Hawaii	56	44	3	2	2	3	1	1	1	1
N. Mariana Islands	4	1	1	1	1	1	1	1	1	1
South Pacific**	12	3	1	1	1	2	1	1	2	1

\*Excludes Puerto Rico, Virgin Islands, N. Mariana Islands, and South Pacific.

\*\*American Samoa, Guam and Trust Territories.



TABLE 3.5

U.S. CIVIL AND JOINT-USE AIRPORTS, HELIPORTS, STOLPORTS, AND SEAPLANE BASES ON RECORD  
BY FAA REGION AND STATE AND OTHER AREAS: DECEMBER 31, 1969 -1978

FAA Region and State	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Total	11,050	11,261	12,070	12,405	12,700	13,062	13,251	13,770	14,117	14,574
United States--total*	11,016	11,226	12,028	12,362	12,656	13,019	13,207	13,728	14,069	14,525
New England--total	440	445	463	457	481	512	529	547	542	540
Connecticut	74	78	86	79	83	91	91	104	103	104
Maine	140	139	148	153	155	158	161	162	162	157
Massachusetts	117	118	116	117	125	131	139	141	139	140
New Hampshire	51	52	54	46	50	56	58	57	54	55
Rhode Island	14	14	14	15	17	17	18	22	24	23
Vermont	44	44	45	47	51	59	62	61	60	61
Eastern--total	1,350	1,418	1,505	1,543	1,631	1,729	1,776	1,860	1,906	1,976
Delaware	24	26	25	30	30	32	32	32	32	32
District of Columbia	5	6	7	7	9	14	16	16	17	17
Maryland	82	81	91	99	107	123	128	135	142	148
New Jersey	167	184	189	192	207	222	222	239	254	263
New York	409	414	444	442	465	478	488	496	490	498
Pennsylvania	453	475	511	514	541	579	609	644	651	692
Virginia	161	185	192	209	220	227	230	240	249	255
West Virginia	49	47	46	50	52	54	51	58	71	71
Great Lakes--total	2,027	2,048	2,258	2,419	2,490	2,594	2,620	2,772	2,832	3,011
Illinois	585	599	652	749	773	829	831	867	876	901
Indiana	180	179	199	208	220	232	237	293	306	317
Michigan	302	305	376	383	401	403	400	421	413	418
Minnesota	259	262	266	276	279	295	301	312	336	420
Ohio	451	447	491	522	536	543	548	558	569	584
Wisconsin	250	256	274	281	281	292	303	321	332	371
Central--total	1,059	1,051	1,125	1,159	1,197	1,205	1,198	1,243	1,274	1,322
Iowa	240	236	241	244	246	248	241	250	253	257
Kansas	272	270	295	307	315	314	318	334	351	372
Missouri	287	286	313	319	341	346	343	358	365	371
Nebraska	260	259	276	289	295	297	296	301	305	322
Southern--total	1,287	1,297	1,365	1,397	1,409	1,436	1,474	1,555	1,666	1,719
Alabama	131	128	130	128	127	126	129	131	142	147
Florida	296	291	323	329	332	341	355	391	438	454
Georgia	192	202	218	231	232	236	248	262	275	278
Kentucky	69	69	73	76	80	81	87	90	97	101
Mississippi	153	152	130	134	138	141	145	148	154	160
North Carolina	209	210	231	228	227	236	237	251	258	270
Puerto Rico	20	20	27	27	27	26	25	23	27	27
South Carolina	108	113	116	120	120	117	116	123	126	126
Tennessee	105	108	113	120	122	128	128	132	144	150
Virgin Islands	4	4	4	4	4	4	4	4	5	6
Southwest--total	1,663	1,704	1,913	1,986	2,020	2,046	2,070	2,087	2,123	2,178
Arkansas	135	144	151	155	161	161	165	166	167	163
Louisiana	218	221	240	260	278	286	281	280	282	287
New Mexico	124	127	129	131	134	134	134	139	139	142
Oklahoma	226	230	265	273	278	273	277	285	285	288
Texas	960	982	1,128	1,167	1,169	1,192	1,213	1,217	1,250	1,298
Rocky Mountain--total	821	846	871	869	872	895	898	947	961	992
Colorado	185	209	217	214	220	228	230	255	261	272
Montana	180	179	180	176	167	168	167	172	169	172
North Dakota	175	184	191	193	194	196	198	209	211	217
South Dakota	112	113	114	114	115	124	125	131	134	142
Utah	82	81	85	87	92	93	90	90	93	95
Wyoming	87	80	84	85	84	86	88	90	93	94
Western--total	1,034	1,047	1,059	1,064	1,063	1,076	1,090	1,124	1,140	1,151
Arizona	207	215	209	198	196	196	196	202	209	209
California	720	730	746	754	753	769	781	804	813	822
Nevada	107	102	104	112	114	111	113	118	118	120
Northwest--total	609	627	680	685	712	743	765	807	841	857
Idaho	168	166	169	169	170	174	181	187	190	190
Oregon	206	221	255	258	264	273	277	286	301	302
Washington	235	240	256	258	278	296	307	334	350	365
Alaskan--total	691	708	762	766	766	766	769	762	763	756
Pacific--total	69	70	69	60	59	60	62	66	69	72
Hawaii	59	59	58	48	46	47	47	51	53	56
N. Mariana Islands	---	---	---	---	---	---	---	---	---	4
South Pacific**	10	11	11	12	13	13	15	15	16	12

\*Excludes Puerto Rico, Virgin Islands, N. Mariana Islands, and South Pacific.

\*\*American Samoa, Guam and Trust Territories.

TABLE 3.6

AIRPORT DEVELOPMENT AND PROGRAM STATUS AS OF DECEMBER 31, 1978

FAA Region and State	Air Carrier			General Aviation		
	Total Federal Funds (000)	Total Airports	Total Projects	Total Federal Funds (000)	Total Airports	Total Projects
Total	\$2,654,993	680	3,168	\$381,121	1,036	1,557
United States--total*	2,586,706	669	3,112	380,430	1,034	1,555
New England--total	66,907	33	177	13,933	51	111
Connecticut	12,154	5	27	2,428	2	11
Maine	12,792	8	48	3,339	19	29
Massachusetts	28,755	10	59	6,160	19	51
New Hampshire	4,581	4	20	1,247	6	10
Rhode Island	4,953	2	5	---	---	---
Vermont	3,672	4	18	759	5	10
Eastern--total	351,713	76	460	52,154	92	164
Delaware	2,488	1	7	953	1	4
District of Columbia	---	---	---	---	---	---
Maryland	20,805	4	21	5,039	8	12
New Jersey	43,887	5	48	9,703	8	20
New York	115,033	23	153	14,116	25	52
Pennsylvania	103,839	22	117	9,305	21	25
Virginia	34,231	12	67	7,941	19	33
West Virginia	31,430	9	47	5,097	10	18
Great Lakes--total	373,066	105	395	63,798	152	199
Illinois	104,555	26	94	12,744	34	48
Indiana	47,816	13	46	13,974	21	26
Michigan	87,751	24	92	10,749	22	26
Minnesota	35,486	15	56	9,709	30	32
Ohio	49,825	13	49	9,533	16	30
Wisconsin	47,633	14	58	7,089	29	37
Central--total	116,723	51	214	26,392	94	119
Iowa	25,217	12	42	5,040	18	25
Kansas	27,230	16	48	6,273	23	26
Missouri	30,167	9	52	8,133	25	31
Nebraska	34,109	14	72	6,946	28	37
Southern--total	515,270	107	532	62,985	207	293
Alabama	34,619	11	55	6,343	18	26
Florida	130,491	29	133	11,638	34	59
Georgia	110,707	12	54	9,089	35	42
Kentucky	35,104	7	54	6,005	15	21
Mississippi	29,666	12	54	7,516	41	56
North Carolina	55,394	13	64	10,881	27	45
Puerto Rico	9,995	2	13	691	2	2
South Carolina	23,753	8	25	4,625	16	19
Tennessee	56,271	11	66	6,197	19	23
Virgin Islands	29,270	2	14	---	---	---
Southwest--total	349,483	75	476	56,830	184	278
Arkansas	22,323	10	66	5,518	22	35
Louisiana	70,847	10	74	5,101	14	21
New Mexico	16,253	10	66	6,053	18	30
Oklahoma	48,909	13	76	7,694	50	67
Texas	191,151	32	194	32,464	80	125
Rocky Mountain--total	205,364	61	289	32,067	94	127
Colorado	76,704	15	59	10,209	16	27
Montana	32,121	15	72	4,342	18	20
North Dakota	22,420	7	39	4,861	18	21
South Dakota	22,458	9	61	4,082	13	15
Utah	29,051	5	21	4,717	16	23
Wyoming	22,610	10	37	3,856	13	21
Western--total	294,036	65	285	37,605	89	145
Arizona	48,889	13	50	7,214	19	22
California	209,565	48	212	27,341	62	109
Nevada	35,582	4	23	3,050	8	14
Northwest--total	118,616	37	163	17,720	61(a)	97
Idaho	17,127	9	42	4,226	16	23
Oregon	45,503	11	51	5,690	21	30
Washington	55,986	17	70	7,804	24	44
Alaskan--total	152,814	55	110	17,348	11	23
Pacific--total	111,001	15	67	289	1	1
Hawaii	81,979	8	38	289	1	1
South Pacific**	29,022	7	29	---	---	---

\*Excludes Puerto Rico, Virgin Islands, and South Pacific.

\*\*Includes American Samoa, Guam and Trust Territories.

(a) Moscow, Idaho, and Pullman, Washington Airport colocated -- counted as one.

#### IV. AIRPORT ACTIVITY

The data presented in this chapter were obtained from quarterly reports submitted to the Civil Aeronautics Board (CAB) by the certificated route air carriers on Schedule T-3 (a) (b) (c), Airport Activity Statistics--Revenue Service. These statistics summarize revenue; passenger enplanements; aircraft departures; and tons of freight, express, and mail enplaned at the 629 certificated points in the 50 States, the District of Columbia, and other U.S. areas designated by the Federal Aviation Administration (FAA) receiving scheduled and nonscheduled service during calendar year 1978. Effective January 1, 1970, in accordance with CAB's stated definition for "Domestic Operations," operations between the 48 conterminous States, Alaska, and Hawaii have been reclassified as domestic.

Air traffic hubs are not airports; they are the cities and Standard Metropolitan Statistical Areas (SMSA) requiring aviation services. An SMSA is a county that contains at least one city of 50,000 population, or twin cities with a combined population of at least 50,000, plus any contiguous counties that are metropolitan in character and have similar economic and social relationships. These metropolitan areas constitute a primary focal point for the transportation research programs of the FAA, and the analyses of individual cities within an area are treated in relationship to the entire area. In those instances where two or more individually certificated communities are located in an SMSA, those communities are grouped under the SMSA definition throughout this publication.

Individual communities fall into four hub classifications as determined by each community's percentage of the total enplaned revenue passengers



in all services and all operations of U.S. certificated route air carriers within the 50 States, the District of Columbia, and other U.S. areas designated by the FAA. Classifications in this issue are based on 264,026,746 total enplaned revenue passengers.

The percentage and number of enplaned passengers in the hub classifications for calendar year 1977 are:

<u>Hub Classification</u>	<u>Percentage of Total Enplaned Passengers</u>	<u>Number of Enplaned Passengers</u>
Large (L)	1.00 or more	2,640,267 or more
Medium (M)	0.25 to 0.99	666,667 to 2,640,268
Small (S)	0.05 to 0.24	133,333 to 666,668
Nonhub (N)	less than 0.05	less than 133,333

For the 12-month period ending December 31, 1978, there were 158 air traffic hubs. These hubs represented 25.1 percent of the 629 certificated points in the 50 States, the District of Columbia, and other U.S. areas receiving air carrier service during the period. The dominance of the hubs in the air traffic patterns is brought out by the fact that of the 264,026,746 passenger enplanements during the period, 96.7 percent (255,345,946) were recorded at the 158 hubs, while the nonhubs accounted for only 3.3 percent (8,680,800). Of the 96.7 percent of the passenger enplanements recorded at the hubs, the 25 large hubs accounted for 68.7 percent, the 39 medium hubs accounted for 18.2 percent, and the 94 small hubs accounted for 9.8 percent.

Commencing 1971, data for passenger enplanements included enplaned passengers in both domestic and international, and scheduled and non-scheduled service of the certificated route air carriers, for all types of aircraft for the 50 States, the District of Columbia, and other U.S. areas designated by the FAA.

TABLE 4.1

CERTIFICATED ROUTE AIR CARRIERS AND NUMBER OF CERTIFICATED ROUTE MILES  
AUTHORIZED: SEPTEMBER 30, 1978

Carrier Type and Certificated Route Carrier	Certificated Linear Route Miles Authorized	Carrier Type and Certificated Route Carrier	Certificated Linear Route Miles Authorized
--	--	--	--

Domestic Passenger/Cargo Carriers

Trunk Lines:		Intra-Hawaiian Lines:	
Big Four:		Aloha Airlines	494
American Airlines	43,755	Hawaiian Airlines	400
Eastern Airlines	43,576		
Trans World Airlines	29,127	Local Service:	
United Air Lines	48,709	Air Midwest, Inc.	896
		Air New England	797
Other:		Allegheny Airlines	8,304
Braniff Airways	25,540	Frontier Airlines	17,968
Continental Air Lines	27,928	Hughes Air West	9,370
Delta Air Lines	50,380	North Central Airlines	10,297
National Airlines	8,401	Ozark Air Lines	7,579
Northwest Airlines	39,393	Piedmont Aviation	5,286
Western Airlines	4,563	Southern Airways	14,281
		Texas International	7,078
Intra-Alaskan Air Lines:		Helicopter:	
Alaska Airlines	4,906	Chicago Helicopter	422
Kodiak-Western Alaska Airlines, Inc.	1,250	New York Airways	139
Munz Northern	291		
Reeve Aleutian Airways	3,281		
Wien Air Alaska	9,746		

International and Territorial Passenger/Cargo Carriers

Air Micronesia	14,561	National Airlines	9,596
American Airlines	27,730	Northwest Airlines	36,565
Braniff Airways	62,587	Pan American World Airways	246,479
Continental Air Lines	18,751	Trans World Airlines	123,895
Delta Air Lines	13,084	Western Airlines	7,017
Eastern Airlines	27,387		

All Cargo Carriers

Flying Tiger Line	15,721	Seaboard World Airlines	16,293
Airlift International	10,656		

Other Carriers

Aspen Airways	112	Wright Air Lines	476
---------------	-----	------------------	-----

1/Certificated route miles authorized are based on each carrier's certificate. This is duplication in that if a pair of points are on different segments, they are counted for each segment.

2/Carrier authorized to suspend service over its route for an indefinite period.

Source: Records Services Section, Office of Facilities and Operations, CAB.

TABLE 4.2

DOMESTIC AIRLINE TRAFFIC ENPLANED AT U.S. STATIONS  
(EXCLUDING ALASKA AND HAWAII): 1969 THROUGH 1978\*

Year	Air Carrier Aircraft Departures	Number of Enplaned Passenger	Tons of Enplaned Mail	Tons of Enplaned Cargo
1969 . . . . .	4,699,273	148,072,090	753,123.8	1,740,082.8
1970** . . . . .	5,001,557	155,938,787	782,229.9	1,926,258.3
1971** . . . . .	4,680,678	152,291,732	862,939.3	2,075,811.5
1972 . . . . .	4,741,495	172,263,469	852,941.2	2,451,766.5
1973 . . . . .	4,818,587	182,987,738	829,023.4	2,717,932.6
1974 . . . . .	4,452,156	189,316,615	827,270.8	2,599,894.1
1975 . . . . .	4,447,559	188,495,858	825,563.2	2,356,691.3
1976 . . . . .	4,597,522	206,664,841	895,081.0	2,483,597.9
1977 . . . . .	4,781,923	229,344,987(r)	997,473.3	3,031,518.1
1978 . . . . .	4,844,426	261,313,500	1,043,564.5	3,244,108.8

\*These data include domestic all-cargo figures which are shown in Table 4.6.

\*\*Fiscal year data.

(r)Revised.

NOTE: Data for 1970 and subsequent years include Alaska and Hawaii. Commencing 1971 and subsequent years, data include scheduled and nonscheduled operations.

Source: CAB-FAA "Airport Activity Statistics of Certificated Route Air Carriers."

TABLE 4.3

AMERICAN FLAG AIRLINE TRAFFIC ENPLANED AT TERRITORIAL  
U.S. STATIONS: 1969 THROUGH 1978

Year	Air Carrier Aircraft Departures	Number of Enplaned Passengers	Tons of Enplaned Mail	Tons of Enplaned Cargo
1969 . . . . .	262,091	7,137,624	33,078.0	96,194.0
1970* . . . . .	42,941	2,331,797	4,792.9	44,719.9
1971* . . . . .	39,445	2,192,217	3,714.3	32,199.1
1972 . . . . .	41,495	2,524,395	4,310.1	37,397.2
1973 . . . . .	46,080	2,622,340	5,109.1	40,548.0
1974 . . . . .	35,906	2,601,804	5,639.3	45,922.6
1975 . . . . .	30,485	2,243,793	5,807.0	47,394.0
1976 . . . . .	28,559	2,258,714	5,551.2	48,329.3
1977 . . . . .	27,511	2,358,039	6,212.7	55,971.6
1978 . . . . .	29,040	2,713,246	5,919.4	59,188.7

\*Fiscal year data.

NOTE: Commencing 1971 and subsequent years, data include scheduled and nonscheduled operations.

Source: CAB-FAA "Airport Activity Statistics of Certificated Route Air Carriers."



TABLE 4.4

DOMESTIC HELICOPTER TRAFFIC ENPLANED AT U.S. STATIONS  
(EXCLUDING ALASKA AND HAWAII): 1969 THROUGH 1978

Year	Air Carrier Aircraft Departures	Number of Enplaned Passenger	Tons of Enplaned Mail	Tons of Enplaned Cargo
1969 . . . . .	112,918	744,436	1,042.9	1,791.0
1970* . . . . .	93,298	620,945	574.2	1,396.8
1971* . . . . .	79,518	544,368	302.8	963.2
1972 . . . . .	79,979	588,288	200.5	969.2
1973 . . . . .	83,152	614,952	154.7	737.9
1974 . . . . .	80,743	591,830	163.5	418.3
1975 . . . . .	67,923	505,827	201.7	210.3
1976 . . . . .	54,123	443,651	109.0	148.8
1977 . . . . .	35,305	268,023	81.1	52.3
1978 . . . . .	31,779	282,539	54.9	53.5

\*Fiscal year data.

NOTE: Data for 1970 and subsequent years include Alaska and Hawaii. Commencing 1971 and subsequent years, data include scheduled and nonscheduled operations.

Source: CAB-FAA "Airport Activity Statistics of Certificated Route Air Carriers."

TABLE 4.5

AMERICAN FLAG AIRLINE TRAFFIC ENPLANED AT FOREIGN STATIONS:  
1969 THROUGH 1978\*

Year	Air Carrier Aircraft Departures	Number of Enplaned Passenger	Tons of Enplaned Mail	Tons of Enplaned Cargo
1969 . . . . .	232,640	9,328,318	58,816.9	213,858.7
1970** . . . . .	188,188	8,886,734	56,003.4	203,979.4
1971** . . . . .	229,164	11,852,243	80,457.5	293,380.1
1972 . . . . .	223,865	12,357,957	61,506.7	361,157.3
1973 . . . . .	224,793	12,614,201	70,614.1	366,634.1
1974 . . . . .	203,980	11,787,449	68,958.2	367,988.3
1975 . . . . .	189,918	10,908,448	62,206.1	363,510.7
1976 . . . . .	183,431	11,575,637	62,557.5	390,220.0
1977 . . . . .	178,711	12,319,732	62,314.1	384,406.4
1978 . . . . .	174,416	13,556,828	57,401.5	386,444.9

\*Includes operations of certificated all-cargo carriers.

\*\*Fiscal year data.

NOTE: Data for 1970 and subsequent years include Alaska and Hawaii. Commencing 1971 and subsequent years, data include scheduled and nonscheduled operations.

Source: CAB-FAA "Airport Activity Statistics of Certificated Route Air Carriers."

TABLE 4.6

DOMESTIC ALL-CARGO AIRLINE TRAFFIC ENPLANED AT U.S. STATIONS  
(EXCLUDING ALASKA AND HAWAII): 1969 THROUGH 1978\*

Year	Air Carrier Aircraft Departures	Number of Enplaned Passenger	Tons of Enplaned Mail	Tons of Enplaned Cargo
1969 . . . . .	13,887	---	3,937.2	109,208.9
1970** . . . . .	12,046	---	4,162.5	116,179.2
1971** . . . . .	11,360	---	8,823.7	150,970.7
1972 . . . . .	11,790	---	6,993.3	217,611.8
1973 . . . . .	15,658	845	16,590.9	306,601.8
1974 . . . . .	16,351	440	16,086.5	321,405.3
1975 . . . . .	13,959	1,641	10,021.6	284,131.9
1976 . . . . .	13,594	---	8,466.7	285,333.4
1977 . . . . .	16,008	---	9,525.8	332,200.2
1978 . . . . .	23,029	---	17,443.3	495,296.0

\*These data are included in Table 4.2.

\*\*Fiscal year data.

NOTE: Data for 1970 and subsequent years include Alaska and Hawaii. Commencing 1971 and subsequent years, data include scheduled and nonscheduled operations.

Source: CAB-FAA "Airport Activity Statistics of Certificated Route Air Carriers."

TABLE 4.7  
AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL IN TOTAL  
OPERATIONS: ALL SERVICES AT LARGE AIR TRAFFIC HUBS

12 MONTHS ENDED DECEMBER 31, 1978

Line No.	Community (Airport Name) Percent of Enplanements	Aircraft departures			Enplaned passengers	Enplaned revenue tons				
		Total performed	Scheduled	Scheduled completed		Freight	Express	U.S. Mail		Foreign mail
								Priority	Nonpriority	
	1	2	3	4	5	6	7	8	9	10
1	ATLANTA, GEORGIA									
2	(WILLIAM B. HARTSFIELD INT'L)									
3	6.90	240741	242685	238143	18226652	146268.92	6005.02	78046.07	189.40	
4	BOSTON, MASSACHUSETTS									
5	(LOGAN INTERNATIONAL)									
6	2.38	98271	97051	93196	6286825	84867.23	1169.32	18079.94	5681.59	12.01
7	CHICAGO, ILLINOIS									
8	(MIDWAY)									
9	0.01	848	860	843	48565	11.04	2.96	3.52		
10	(O'HARE INTERNATIONAL)									
11	8.15	289960	293359	285533	21527037	411789.42	10238.83	75195.11	24631.95	
12	COMMUNITY TOTAL									
13	8.16	290808	294219	286376	21575602	411800.46	10241.79	75198.63	24631.95	
14	CLEVELAND, OHIO									
15	(BURKE LAKEFRONT)									
16	0.02	2320	2271	2196	56060					
17	(HOPKINS INTERNATIONAL)									
18	1.32	62840	63956	62128	3485207	45157.91	3206.29	11961.00	673.73	
19	COMMUNITY TOTAL									
20	1.34	65160	66227	64324	3541267	45157.91	3206.29	11961.00	673.73	
21	DALLAS-FORT WORTH, TEXAS									
22	(LOVE FIELD)									
23	0.00	4			106					
24	(DALLAS-FORT WORTH REGIONAL)									
25	3.65	153534	154223	152075	9638136	96649.56	1665.63	41737.59	501.84	20.14
26	COMMUNITY TOTAL									
27	3.65	153538	154223	152075	9638242	96649.56	1665.63	41737.59	501.84	20.14
28	DENVER, COLORADO									
29	(STAPLETON INTERNATIONAL)									
30	3.35	136638	137719	135105	8861423	67442.68	894.70	21843.30	2696.02	
31	DETROIT/ANN ARBOR, MICHIGAN									
32	(DETROIT CITY)									
33	0.01	1508	1492	1437	36993					
34	(DETROIT METROPOLITAN WAYNE CTY)									
35	1.82	79731	79999	77893	4805448	126646.48	1206.95	18641.88	3944.18	
36	COMMUNITY TOTAL									
37	1.83	81239	81491	79330	4842441	126646.48	1206.95	18641.88	3944.18	
38	HONOLULU, OAHU, HAWAII									
39	(HONOLULU INTERNATIONAL)									
40	2.22	48570	44710	41043	5864914	83427.66	258.60	12400.07	7294.74	601.79
41	HOUSTON, TEXAS									
42	(HOUSTON INTERCONTINENTAL)									
43	1.73	76247	76565	75294	4593382	54209.95	474.08	12855.18	3056.03	33.76
44	(WILLIAM P. HOBBS)									
45	0.01	614	804	784	39318	25.92	.09			
46	COMMUNITY TOTAL									
47	1.74	77061	77369	76078	4632700	54235.87	474.17	12855.18	3056.03	33.76
48	KANSAS CITY, MISSOURI									
49	(INTERNATIONAL)									
50	1.05	62540	62879	61774	2789820	20528.39	335.56	16042.25	984.44	
51	LAS VEGAS, NEVADA									
52	(MC CARRAN INTL)									
53	1.49	54675	51155	50319	3957489	3875.23	41.14	1721.93	12.42	
54	LOS ANGELES/BURBANK/LONG BEACH, CALIF.									
55	(HOLLYWOOD-BURBANK)									
56	0.09	5819	5890	5784	243769	2645.83	6.76	.06		
57	(LOS ANGELES INTERNATIONAL)									
58	4.89	152122	151724	149448	12913589	344766.83	5441.09	39950.99	17339.90	38.94
59	(ORANGE COUNTY)									
60	0.12	4991	5075	4971	321789	774.22	4.28	.07		
61	COMMUNITY TOTAL									
62	5.10	162932	162689	160203	13479147	348186.88	5452.13	39951.12	17339.90	38.94
63	MIAMI/FT. LAUDERDALE, FLORIDA									
64	(FT. LAUDERDALE-HOLLYWOOD INTL)									
65	1.02	39789	39899	39263	2694533	8388.52	243.28	2866.27	126.61	
66	(MIAMI INTERNATIONAL)									
67	2.38	85527	84923	83448	6299389	138623.22	1317.87	14174.68	2340.55	57.87
68	COMMUNITY TOTAL									
69	3.40	125316	124822	122711	8993922	147021.74	1561.15	17040.95	2467.16	57.87
70	MINNEAPOLIS-ST. PAUL, MINNESOTA									
71	(MINNEAPOLIS-ST. PAUL INTL)									
72	1.49	60873	59713	58788	3952367	42764.70	586.28	17621.34	2703.55	
73	NEWARK, NEW JERSEY									
74	(NEWARK)									
75	1.59	65444	65835	63517	4215808	42529.70	1412.69	14293.74	7682.99	
76	NEW ORLEANS, LOUISIANA									
77	(INTERNATIONAL/MOISANT FIELD)									
78	1.14	49098	49177	48438	3018722	14779.19	462.97	5448.29	493.13	.02
79	NEW YORK, NEW YORK									
80	(JOHN F. KENNEDY INTL)									
81	3.23	101774	98729	94641	8531818	378557.24	2441.57	57416.72	22425.36	18.90
82	(LA GUARDIA)									
83	3.23	133507	129233	123702	8541582	26731.82	1646.49	20407.33	3668.21	
84	(WALL STREET HELIPORT)									
85	0.00	3309	4692	3135	8648	.31				
86	COMMUNITY TOTAL									
87	6.46	248590	232654	221478	17082048	405289.37	4088.06	77824.05	26093.57	18.90



TABLE 4.7  
 AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL IN TOTAL  
 OPERATIONS, ALL SERVICES AT LARGE AIR TRAFFIC HUBS  
 12 MONTHS ENDED DECEMBER 31, 1970

Line No.	Community (Airport Name) Percent of Enplanements	Aircraft departures			Enplaned passengers	Enplaned revenue tons				
		Total performed	Scheduled	Scheduled completed		Freight	Express	U.S. Mail		Foreign mail
								Priority	Nonpriority	
No.	1	2	3	4	5	6	7	8	9	10
1	PHILADELPHIA, PA/CAMDEN, NJ									
2	(INTERNATIONAL)									
3	1.56	68789	69835	67954	4138542	54513.41	1161.17	19080.40	7045.31	
4	PHOENIX, ARIZONA									
5	(PHOENIX SKY HARBOR INTL)									
6	1.15	50610	50907	50120	3056169	15823.56	230.01	5488.07	1619.44	
7	PITTSBURGH, PA/WHEELING, W VA									
8	(GREATER PITTSBURGH)									
9	1.75	92531	94106	91329	4635645	19384.21	836.50	14399.85	1814.05	
10	ST. LOUIS, MISSOURI									
11	(LAMBERT-ST LOUIS MUNI)									
12	1.78	93484	94490	92417	4714822	28740.85	412.89	19816.22	1516.58	
13	SAN FRANCISCO/OAKLAND, CAL.									
14	(OAKLAND METROPOLITAN INTL)									
15	0.16	9647	9683	9507	438736	1170.23	22.98	826.01	.23	
16	(SAN FRANCISCO INTL)									
17	3.09	104433	103976	102291	6159652	197515.44	3727.56	32857.00	17641.25	1.19
18	COMMUNITY TOTAL									
19	3.25	114080	113659	111798	8598388	198685.67	3750.54	33683.01	17641.48	1.19
20	SEATTLE/TACOMA, WASHINGTON									
21	(BOEING FIELD INTL.)									
22	0.00	135	117	103	1412	220.10	.09	6.27		
23	(SEATTLE-TACOMA INTERNATIONAL)									
24	1.55	55678	55676	54370	4112657	113768.97	949.93	17854.66	5298.74	
25	COMMUNITY TOTAL									
26	1.55	55813	55793	54473	4114069	113989.07	950.02	17860.93	5298.74	
27	TAMPA, ST. PETERSBURG/CLMTRG, FLA									
28	(TAMPA INTERNATIONAL)									
29	1.17	58930	59245	58491	3106218	15709.66	290.01	7309.84	785.27	.03
30	WASHINGTON, DIST. OF COL.									
31	(DULLES INTERNATIONAL)									
32	0.54	25267	25040	24582	1426236	13445.28	132.74	7676.62	9587.48	28.65
33	(WASHINGTON NATIONAL)									
34	2.50	103202	100332	98392	6609837	18487.91	492.63	21550.98	10396.71	
35	COMMUNITY TOTAL									
36	3.04	128469	125372	122974	8036073	31933.19	625.37	29227.60	19984.19	28.65
37	OVER-ALL TOTAL, LARGE HUBS									
38	68.54	2674200	2668035	2602454	161359315	2620251.59	47318.96	627573.25	162151.70	813.30
39										
40										
41										
42										
43										
44										
45										
46										
47										
48										
49										
50										
51										
52										
53										
54										
55										
56										
57										
58										
59										
60										
61										
62										
63										
64										
65										
66										
67										
68										
69										
70										
71										
72										
73										
74										
75										
76										
77										
78										
79										
80										
81										
82										
83										
84										
85										
86										
87										
88										
89										
90										
91										
92										
93										
94										
95										
96										
97										
98										
99										
100										
101										
102										
103										
104										
105										
106										
107										
108										
109										
110										
111										
112										

TABLE 4.8  
 AIRCRAFT DEPARTURES, ENPLANED PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL IN TOTAL  
 OPERATIONS, ALL SERVICES AT MEDIUM AIR TRAFFIC HUBS  
 12 MONTHS ENDED DECEMBER 31, 1978

Line No.	Community (Airport Name) Percent of Enplanements	Aircraft departures			Enplaned passengers	Enplaned revenue tons				
		Total performed	Scheduled	Scheduled completed		Freight	Express	U.S. Mail		Foreign mail
								Priority	Nonpriority	
		2	3	4	5	6	7	8	9	10
1	ALBANY, NEW YORK									
2	(ALBANY COUNTY)									
3	0.25	14247	14703	14213	663818	1188.47	20.89	843.53	.62	
4	ALBUQUERQUE, NEW MEXICO									
5	(ALBUQUERQUE SUNPRT/KIRTLND AFB)									
6	0.41	23277	23529	23165	1094525	3607.81	8.78	2605.44	212.64	
7	ANCHORAGE, ALASKA									
8	(ANCHORAGE INTERNATIONAL)									
9	0.32	17999	16913	16104	860380	115077.38	64.19	14928.46	11349.06	.56
10	(ELMENDORF AFB)									
11	0.00	4	3	3	84	.02		.06		
12	COMMUNITY TOTAL									
13	0.32	18003	16916	16107	860464	115077.40	64.19	14928.52	11349.06	.56
14	BALTIMORE, MARYLAND									
15	(BALTO/WASH INTL)									
16	0.64	35073	35219	34461	1690098	17545.61	536.92	7646.14	2281.84	
17	BIRMINGHAM, ALABAMA									
18	(BIRMINGHAM MUNI)									
19	0.29	21975	22029	21694	773652	2665.59	115.40	2930.91	41.46	
20	BUFFALO/NIAGARA FALLS, NEW YORK									
21	(GREATER BUFFALO INTERNATIONAL)									
22	0.65	37387	38179	37104	1739843	12185.13	450.41	4997.24	1210.07	
23	(INTERNATIONAL)									
24	0.00	1	1	1	12					
25	COMMUNITY TOTAL									
26	0.65	37388	38180	37105	1739855	12185.13	450.41	4997.24	1210.07	
27	CHARLOTTE, NORTH CAROLINA									
28	(DOUGLAS MUNI)									
29	0.55	32438	32779	32058	1456132	17454.95	570.19	6672.01	66.09	
30	CINCINNATI, OHIO									
31	(GREATER CINCINNATI)									
32	0.58	38263	38920	38019	1536142	12471.72	201.66	5607.61	868.07	
33	COLUMBUS, OHIO									
34	(PORT COLUMBUS INTERNATIONAL)									
35	0.48	28092	28388	27816	1290199	5997.71	261.12	5342.81	557.27	
36	DAYTON, OHIO									
37	(JAMES M COX DAYTON MUNI)									
38	0.37	24750	25236	24584	979209	13495.55	203.20	3082.69	321.30	
39	EL PASO, TEXAS									
40	(EL PASO INTERNATIONAL)									
41	0.30	15503	15507	15395	796734	7974.30	74.49	1753.95	.15	
42	GREENSBORO/HIGH PT/WINSTN, N.C.									
43	(GREENSBORO-HIGH PT-WINSTN REG.)									
44	0.23	16068	16182	15851	608383	3396.62	306.19	2346.64	42.07	
45	(SMITH-REYNOLDS)									
46	0.02	4599	4219	4079	60256	256.85	.04	1.95		
47	COMMUNITY TOTAL									
48	0.25	20667	20401	19930	668639	3653.47	306.23	2348.59	42.07	
49	HARTFORD/SPGFLD/WESTFLO, MASS									
50	(BRADLEY INTL)									
51	0.55	30450	30916	30026	1476451	16029.02	558.35	6673.01	593.80	
52	INDIANAPOLIS, INDIANA									
53	(INDIANAPOLIS MUNI/WEIR-COOK)									
54	0.58	37458	37722	36871	1556591	17619.81	428.87	8278.46	968.80	
55	JACKSONVILLE, FLORIDA									
56	(JACKSONVILLE INTERNATIONAL)									
57	0.31	17011	17098	16886	820113	2485.93	95.88	4601.17	6.19	
58	KAHULUI, MAUI, HAWAII									
59	(KAHULUI)									
60	0.57	20575	19123	16749	1511332	2461.56		436.04	408.01	
61	LIHUE, KAUAI, HAWAII									
62	(LIHUE)									
63	0.42	12667	11081	9808	1117412	780.80		254.72	184.54	
64	LOUISVILLE, KENTUCKY									
65	(STANDIFORD FIELD)									
66	0.39	29197	29584	28938	1051933	6069.43	175.60	4749.20	14.10	
67	MEMPHIS, TENNESSEE									
68	(MEMPHIS INTERNATIONAL)									
69	0.88	62406	63209	62037	2344531	20191.33	575.53	10182.88	243.69	
70	MILWAUKEE, WISCONSIN									
71	(GENERAL MITCHELL FIELD)									
72	0.55	35618	35574	34671	1460755	9312.99	290.95	6574.54	96.70	
73	NASHVILLE, TENNESSEE									
74	(METROPOLITAN)									
75	0.43	31390	31760	31183	1156836	8051.67	289.95	3870.95	423.60	
76	NORFOLK/VA RCH/PTSMH/CHESPE, VA									
77	(NORFOLK REGIONAL)									
78	0.33	19331	19599	19221	887487	1933.51	48.08	1890.13	200.07	
79	OKLAHOMA CITY, OKLAHOMA									
80	(WILL ROGERS WORLD)									
81	0.39	25675	25970	25566	1042187	4541.64	32.96	4142.73	388.74	
82	OMAHA, NEBRASKA									
83	(EPPLEY AIRFIELD)									
84	0.34	22763	22813	22282	918023	4123.34	166.41	5213.39	67.61	
85					31					

TABLE 4.8  
 AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL IN TOTAL  
 OPERATIONS, ALL SERVICES AT MEDIUM AIR TRAFFIC HUBS  
 12 MONTHS ENDED DECEMBER 31, 1978

Line No.	Community (Airport Name) Percent of Enplanements	Aircraft departures			Enplaned passengers	Enplaned revenue tons				
		Total performed	Scheduled	Scheduled completed		Freight	Express	U.S. Mail		Foreign mail
								Priority	Nonpriority	
	1	2	3	4	5	6	7	8	9	10
1	ORLANDO, FLORIDA									
2	(MCCOY AFB)									
3	0.92	40156	40482	39562	2446984	20580.97	127.52	2864.00	115.32	
4	PORTLAND, OREGON									
5	(PORTLAND INTERNATIONAL)									
6	0.77	40142	40568	39736	2058535	23173.37	324.00	6197.42	678.43	
7	RALEIGH/DUPHAM, NORTH CAROLINA									
8	(RALEIGH-DURHAM)									
9	0.30	16643	16627	16398	792640	4902.79	249.55	2596.49	18.40	
10	RENO, NEVADA									
11	(RENO INTL)									
12	0.38	17887	18065	17732	1024232	1639.58	122.51	1306.33	2.49	
13	ROCHESTER, NEW YORK									
14	(ROCHESTER-MONROE COUNTY)									
15	0.34	21945	22639	21775	901125	4617.29	184.95	3718.50	96.96	
16	SACRAMENTO, CALIFORNIA									
17	(SACRAMENTO METROPOLITAN)									
18	0.25	11384	11471	11219	667303	1429.44	76.39	2232.05		
19	SALT LAKE CITY, UTAH									
20	(SALT LAKE CITY INTL)									
21	0.76	37966	38155	37660	2022249	10682.73	175.77	6639.40	52.66	
22	SAN ANTONIO, TEXAS									
23	(SAN ANTONIO INTERNATIONAL)									
24	0.42	23861	23916	23591	1111959	6385.03	73.95	3827.66	297.52	
25	SAN DIEGO, CALIFORNIA									
26	(SAN DIEGO INTL-LINDBERGH FLD)									
27	0.77	28511	28655	28227	2051226	9893.88	169.61	4687.62	4.14	
28	SAN JUAN, PUERTO RICO									
29	(PUERTO RICO INTERNATIONAL)									
30	0.75	15125	14813	14359	1982531	54633.78	13.92	2985.46	427.18	7.87
31	SPOKANE, WASHINGTON									
32	(SPOKANE INTERNATIONAL)									
33	0.26	13378	13503	13271	695278	2468.15	57.99	1843.39	20.96	
34	SYRACUSE, NEW YORK									
35	(CLARENCE F. HANCOCK)									
36	0.31	15760	16158	15681	831029	10016.00	158.49	2360.03	59.62	
37	TUCSON, ARIZONA									
38	(TUCSON INTL)									
39	0.31	17346	17474	17277	837498	2926.99	22.47	1375.41	7.16	
40	TULSA, OKLAHOMA									
41	(TULSA INTL)									
42	0.36	23964	24102	23801	952622	6902.31	88.75	4162.14	1152.07	
43	WEST PALM BEACH/PALM BEACH, FLA									
44	(PALM BEACH INTERNATIONAL)									
45	0.33	17042	17163	16908	894810	1902.06	162.03	1417.89	58.78	
46	OVER-ALL TOTAL, MEDIUM HUBS									
47	18.06	995327	1000097	975982	48163139	469073.11	7483.96	163840.41	23364.18	8.43
48										
49										
50										
51										
52										
53										
54										
55										
56										
57										
58										
59										
60										
61										
62										
63										
64										
65										
66										
67										
68										
69										
70										
71										
72										
73										
74										
75										
76										
77										
78										
79										
80										
81										
82										
83										
84										
85										
86										
87										
88										
89										
90										
91										
92										
93										
94										
95										
96										
97										
98										
99										
100										
101										
102										
103										
104										
105										
106										
107										
108										
109										
110										
111										
112										



TABLE 4.9  
AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL IN TOTAL  
OPERATIONS, ALL SERVICES AT SMALL AIR TRAFFIC HUBS  
12 MONTHS ENDED DECEMBER 31, 1978

Line No.	Community (Airport Name) Percent of Enplanements	Aircraft departures			Enplaned passengers	Enplaned revenue tons				
		Total performed	Scheduled	Scheduled completed		Freight	Express	U.S. Mail		Foreign mail
								Priority	Nonpriority	
	1	2	3	4	5	6	7	8	9	10
1	AKRON/CANTON, OHIO									
2	(AKRON-CANTON)									
3	0.10	7247	7411	7199	284723	677.49	58.02	1104.49	1.18	
4	ALLENTOWN/BETHLEHEM/EASTON, PA									
5	(ALLENTOWN-BETHLEHEM-EASTON)									
6	0.10	5196	5280	5154	280296	296.67	19.44	69.35	1.21	
7	AMARILLO/BORGER, TEXAS									
8	(AMARILLO AIR TERMINAL)									
9	0.11	7831	7998	7797	294273	620.18	1.42	684.68	.56	
10	ASHEVILLE, NORTH CAROLINA									
11	(ASHEVILLE MUNI)									
12	0.06	6947	7151	6920	182242	499.84	3.87	241.50	.90	
13	AUGUSTA, GEORGIA									
14	(BUSH FIELD)									
15	0.07	6049	6102	5990	200535	742.70	7.85	218.11		
16	AUSTIN, TEXAS									
17	(ROBERT MUELLER MUNI)									
18	0.19	10108	10158	10047	517030	1718.97	6.79	1568.76		
19	BAKERSFIELD, CALIFORNIA									
20	(MEADOWS FIELD)									
21	0.05	3251	3284	3193	139536	244.02	21.13	48.45	.11	
22	BANGOR, MAINE									
23	(BANGOR INTERNATIONAL)									
24	0.05	2792	2828	2759	142717	730.75	.76	90.50		
25	BATON ROUGE, LOUISIANA									
26	(RYAN)									
27	0.09	7226	7247	7127	251265	447.04	9.33	89.86		
28	BILLINGS, MONTANA									
29	(LOGAN FIELD)									
30	0.10	7897	8117	7859	285007	770.43	4.49	1146.04	7.16	
31	BOISE, IDAHO									
32	(BOISE AIR TERMINAL/GOWEN FLD)									
33	0.17	10597	10620	10524	459845	987.29	45.94	1300.80	7.01	
34	BRISTOL/KINGSBURY/JHNSN CTY, TENN									
35	(TRI CITY)									
36	0.08	9567	9795	9510	228945	1909.54	32.16	319.76		
37	BURLINGTON, VERMONT									
38	(BURLINGTON INTERNATIONAL)									
39	0.06	5261	5440	5225	177830	722.96	4.28	98.13		
40	CASPER, WYOMING									
41	(CASPER AIR TERMINAL)									
42	0.05	4109	4139	4052	132625	665.76	4.37	71.55	.06	
43	CDAR RAPIDS/IOWA CITY, IOWA									
44	(CEDAR RAPIDS MUNI)									
45	0.09	7810	7922	7721	263955	1949.65	125.99	835.10	.06	
46	CHARLESTON, SOUTH CAROLINA									
47	(CHARLESTON AFB/MUNI)									
48	0.16	10121	10178	10036	444341	1321.58	60.56	628.64	15.21	
49	CHARLESTON/DUNBAR, W. VIRGINIA									
50	(KANAWHA)									
51	0.10	8011	8458	7971	270691	358.38	17.19	554.34	.27	
52	CHARLOTTE AMALIE, VIRGIN IS. US									
53	(HARRY S. TRUMAN)									
54	0.06	3369	3352	3261	174787	130.80		69.10	.72	
55	CHATTANOOGA, TENNESSEE									
56	(LOVELL FIELD)									
57	0.11	9137	9164	9008	307600	1702.69	57.98	1070.03	1.25	
58	CHRISTIANSTED, ST. CROIX, V.I. US									
59	(ALEXANDER HAMILTON)									
60	0.08	4308	4199	4167	236587	470.81		117.89	1.66	
61	COLORADO SPRINGS, COLORADO									
62	(PETERSON FIELD)									
63	0.10	7609	7900	7499	287630	1459.59	8.71	99.51		
64	COLUMBIA, SOUTH CAROLINA									
65	(COLUMBIA METROPOLITAN)									
66	0.15	10358	10444	10252	415933	1475.58	118.13	1242.76	1.22	
67	COLUMBUS, GEORGIA									
68	(COLUMBUS METROPOLITAN)									
69	0.06	5739	5780	5682	171499	640.01	18.62	101.47	.39	
70	CORPUS CHRISTI, TEXAS									
71	(CORPUS CHRISTI INTERNATIONAL)									
72	0.07	3503	3498	3454	207853	487.59	18.88	152.32	.39	
73	DAYTONA BEACH, FLORIDA									
74	(DAYTONA BEACH REGIONAL)									
75	0.12	5839	5839	5761	331352	779.73	11.51	1.44	.01	
76	DES MOINES, IOWA									
77	(DES MOINES MUNI)									
78	0.24	16761	16849	16512	654821	2420.95	127.15	412.42	55.64	
79	DULUTH, MINN./SUPERIOR, WIS.									
80	(DULUTH INTERNATIONAL)									
81	0.05	5997	6065	5903	139651	947.53	1.92	153.01		
82	ERIE, PENNSYLVANIA									
83	(ERIE INTL)									
84	0.05	3514	3622	3475	143232	469.99	28.01	131.54		
85					33					

TABLE 4.9  
 AIRCRAFT DEPARTURES, ENPLANED PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL IN TOTAL  
 OPERATIONS, ALL SERVICES AT SMALL AIR TRAFFIC HUBS  
 12 MONTHS ENDED DECEMBER 31, 1978

L i n e  No.	Community (Airport Name) Percent of Enplanements	Aircraft departures			Enplaned passengers	Enplaned revenue tons				
		Total performed	Scheduled	Scheduled completed		Freight	Express	U.S. Mail		Foreign mail
								Priority	Nonpriority	
1	2	3	4	5	6	7	8	9	10	
1	EUGENE, OREGON									
2	(MAHLON SWEET FIELD)									
3	0.07	4495	4535	4451	204607	405.22	23.17	282.67	.01	
4	EVANSVILLE, INDIANA									
5	(EVANSVILLE BRESS REGIONAL)									
6	0.09	5837	5942	5789	249826	1731.64	101.29	165.53	1.91	
7	FAIRBANKS, ALASKA									
8	(FAIRBANKS INTERNATIONAL)									
9	0.08	7076	6591	5945	221511	4019.95		2195.45	1934.44	
10	FARGO, N.D./MOOREHEAD, MINNESOTA									
11	(HECTOR FIELD)									
12	0.05	5250	5138	5053	155639	365.87	1.63	606.82	1.67	
13	FAYETTEVILLE, NORTH CAROLINA									
14	(FAYETTEVILLE MUNI/GRANNIS FLD)									
15	0.06	5772	5889	5758	165000	628.53	3.52	153.45		
16	FLINT, MICHIGAN									
17	(BISHOP)									
18	0.05	4861	4991	4803	140378	170.69	14.50	226.61		
19	FORT MYERS, FLORIDA									
20	(PAGE FIELD)									
21	0.12	4850	4837	4783	328317	856.90	23.28	8.92		
22	FORT WAYNE, INDIANA									
23	(MUNICIPAL/BAER FIELD)									
24	0.09	6074	6174	5977	255867	2545.66	125.52	982.51	.56	
25	FRESNO, CALIFORNIA									
26	(FRESNO AIR TERMINAL)									
27	0.14	5362	5400	5321	374279	512.55	37.06	733.58	.02	
28	GAINESVILLE, FLORIDA									
29	(GAINESVILLE MUNI)									
30	0.05	1835	1839	1823	141388	182.02	27.25	.11	.43	
31	GRAND JUNCTION, COLORADO									
32	(WALKER FIELD)									
33	0.06	3760	3763	3680	161536	389.54	24.30	139.67		
34	GRAND RAPIDS, MICHIGAN									
35	(KEMU COUNTY)									
36	0.15	12409	12583	12213	421734	1847.94	79.02	968.66	.59	
37	GREAT FALLS, MONTANA									
38	(GREAT FALLS INTERNATIONAL)									
39	0.05	4603	4675	4572	142263	474.03	1.05	399.81	1.97	
40	GREEN BAY/CLINTONVILLE, WIS.									
41	(AUSTIN-STRAUBEL FIELD)									
42	0.12	11045	11157	10876	329402	1778.77	9.46	778.87	.04	
43	GREENVILLE/SPARTANBURG, S.C.									
44	(GREENVILLE-SPARTANBURG)									
45	0.12	8490	8528	8310	335467	1215.57	472.90	905.06	12.16	
46	AGANA NAS, GUAM ISLAND									
47	(AGANA FIELD)									
48	0.06	2543	2430	2343	171473	2666.60		1008.22	991.47	1.11
49	HARRISBURG/DAKOTA, PA.									
50	(HARRISBURG INTERNATIONAL)									
51	0.11	6229	6381	6151	315963	1163.48	3.65	770.53	.01	
52	HILG, HAWAII, HAWAII									
53	(GENERAL LYMAN FIELD)									
54	0.24	9074	8666	7904	659695	18179.01	.02	644.99	401.73	
55	HUNTSVILLE/DECATUR, ALABAMA									
56	(MADISON COUNTY JETPORT)									
57	0.10	8092	8131	8032	276000	1347.61	13.99	84.98	1.29	
58	INDIO/PALM SPRINGS, CALIFORNIA									
59	(PALM SPRINGS MUNI)									
60	0.07	3469	3511	3444	196988	184.07	3.40	2.12		
61	JACKSON-VICKSBURG, MISS.									
62	(ALLEN C. THOMPSON FIELD)									
63	0.15	12776	12877	12717	421072	2183.41	17.25	1347.96		
64	JUNEAU, ALASKA									
65	(JUNEAU MUNI)									
66	0.05	3042	3034	3003	142961	764.09		536.50	200.03	
67	KAILUA-KONA, HAWAII, HAWAII									
68	(KE-ANOLE)									
69	0.21	7805	6729	6110	566932	1951.34		169.61	130.27	
70	KALAMAZOO-BATTLE CREEK, MICH.									
71	(KALAMAZOO MUNI)									
72	0.05	5014	5183	4969	136746	350.70	.50	232.62		
73	KNOXVILLE, TENNESSEE									
74	(MC GHEE LYSON)									
75	0.18	12145	12244	12037	476799	3326.99	127.33	1287.05	12.75	
76	LANSING, MICHIGAN									
77	(CAPITAL CITY)									
78	0.08	8170	8324	8072	223243	449.08	25.03	556.72	.19	
79	LEXINGTON/FRANKFORT, KENTUCKY									
80	(BLUE GRASS)									
81	0.12	8342	8525	8286	325363	1811.06	139.32	412.45	.78	
82	LINCOLN, NEBRASKA									
83	(LINCOLN MUNI)									
84	0.08	9168	9296	9053	230346	945.20	18.66	563.30	3.11	
85					34					

TABLE 4.9  
AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL IN TOTAL  
OPERATIONS, ALL SERVICES AT SMALL AIR TRAFFIC HUBS  
12 MONTHS ENDED DECEMBER 31, 1978

Line No.	Community (Airport Name) Percent of Enplanements	Aircraft departures			Enplaned passengers	Enplaned revenue tons				
		Total performed	Scheduled	Scheduled completed		Freight	Express	U.S. Mail		Foreign mail
								Priority	Nonpriority	
1	2	3	4	5	6	7	8	9	10	
1	LITTLE ROCK, ARKANSAS (ADAMS FIELD)									
2	0.21	13336	13494	13255	555942	2606.70	96.52	1752.41	2.01	
3	LUNNROCK, TEXAS (LUNNROCK REGIONAL)									
4	0.10	6843	7062	6786	273008	1745.35	8.86	460.21		
5	MADISON, WISCONSIN (TRUAK FIELD)									
6	0.13	11077	11136	10881	356601	1564.20	7.52	423.19		
7	ME BOURNE, FLORIDA (CAPE KENNEDY REGIONAL)									
8	0.07	4342	4367	4309	193022	433.75	22.25	.97	1.04	
9	MIDLAND/ODESSA, TEXAS (MIDLAND REGIONAL)									
10	0.10	6445	6539	6412	281449	1548.03	5.64	452.55		
11	MOBILE, AL/PASCAGOULA, MISS (RAFS FIELD)									
12	0.13	10324	10389	10228	343543	595.89	83.03	477.57	.62	
13	MOLINE, ILLINOIS/DAVENPORT, IOWA (QUAD-CITY)									
14	0.12	10865	10958	10715	340967	753.16	31.61	862.65		
15	MONTGOMERY, ALABAMA (DANNELLY FIELD)									
16	0.09	7327	7344	7263	237937	726.51	38.18	286.07	.95	
17	NEWPT NEW/HAMPTN/WILBG/YKTN,VA (PATRICK HENRY)									
18	0.06	4857	4935	4825	168020	447.44	54.52	3.77		
19	ONTARIO/SAN BERNARD/RIVERSE,CA (ONTARIO INTERNATIONAL)									
20	0.21	11081	11163	10944	554855	1858.71	41.71	8.14	15.43	
21	PENSACOLA, FLORIDA (PENSACOLA REGIONAL)									
22	0.08	4341	4422	4310	235500	482.74	13.23	856.27	2.81	
23	PEORIA, ILLINOIS (GREATER PEORIA)									
24	0.10	9885	10041	9791	271999	1187.02	1.43	739.01		
25	PORTLAND, MAINE (PORTLAND INTERNATIONAL AIRPORT)									
26	0.09	6204	6452	6109	239425	1149.60	14.40	316.39		
27	PROVIDENCE, RHODE ISLAND (THEODORE FRANCIS GREEN STATE)									
28	0.18	10737	11111	10654	500144	2168.80	70.73	1799.19	3.87	
29	RAPID CITY, SOUTH DAKOTA (RAPID CITY REGIONAL)									
30	0.05	5555	5619	5522	151741	298.50	2.39	259.95	1.34	
31	RICHMOND, VIRGINIA (RICHARD E BYRD FLYING FIELD)									
32	0.21	15460	15673	15307	567816	1444.25	42.28	1009.56	1.14	
33	ROANOKE, VIRGINIA (ROANOKE MUNI)									
34	0.14	14311	14919	14235	392082	1635.59	9.08	326.61	.07	
35	ROCHESTER, MINNESOTA (ROCHESTER MUNI)									
36	0.05	6214	6241	6067	150469	239.79	8.32	56.16		
37	SAGINAW/BAY CITY/MIDLAND,MICH. (TRI CITY)									
38	0.08	5907	6044	5858	226895	502.94	35.63	208.19		
39	SALINAS/MONTEREY, CALIFORNIA (PENINSULA)									
40	0.09	4537	4612	4524	244255	304.63	23.49	5.38		
41	SAN JOSE, CALIFORNIA (SAN JOSE MUNI)									
42	0.22	11482	11505	11335	588448	4960.25	50.31	817.09	9.36	
43	SANTA BARBARA, CALIFORNIA (SANTA BARBARA)									
44	0.06	2849	2992	2839	165782	210.47	22.55	39.68	.13	
45	(SANTA MARTA PUBLIC)									
46	0.00	692	746	689	19056	23.70	.12			
47	COMMUNITY TOTAL									
48	0.06	3541	3738	3528	184838	234.17	22.67	39.68	.13	
49	SARASOTA/BRADENTON, FLORIDA (SARASOTA-BRADENTON)									
50	0.16	7914	7967	7855	443366	927.92	45.26	1.38	.10	
51	SAVANNAH, GEORGIA (SAVANNAH MUNI)									
52	0.13	5986	5426	5366	346096	551.25	6.91	186.70		
53	SCRANTON/WILKES-BARRE, PENNA. (WILKES-BARRE-SCRANTON)									
54	0.06	3668	3761	3635	167096	290.46	3.91	68.96	3.59	
55	SHREVEPORT, LOUISIANA (GREATER SHREVEPORT MUNI)									
56	0.16	13119	13255	13066	428352	1658.42	17.79	964.82		
57	STOUX FALLS, SOUTH DAKOTA (JOE FOSS FIELD)									
58	0.10	11736	11771	11501	280822	1075.28	4.80	1048.37	2.32	
59					35					



TABLE 4.9  
 AIRCRAFT DEPARTURES, ENPLANED REVENUE PASSENGERS, AND ENPLANED REVENUE TONS OF CARGO AND MAIL IN TOTAL  
 OPERATIONS, ALL SERVICES AT SMALL AIR TRAFFIC HUBS  
 12 MONTHS ENDED DECEMBER 31, 1978

L i n e  No.	Community (Airport Name) Percent of Enplanements	Aircraft departures			Enplaned passengers	Enplaned revenue tons				
		Total performed	Scheduled	Scheduled completed		Freight	Express	U.S. Mail		Foreign mail
								Priority	Nonpriority	
	1	2	3	4	5	6	7	8	9	10
1	SOUTH BEND, INDIANA									
2	(ST JOSEPH COUNTY)									
3	0.08	6293	6498	6198	232397	946.75	94.72	360.49		
4	SPRINGFIELD, MISSOURI									
5	(SPRINGFIELD MUNI)									
6	0.07	6966	7060	6928	185864	648.87	.52	75.07		
7	TALLAHASSEE, FLORIDA									
8	(TALLAHASSEE MUNI)									
9	0.08	6277	6357	6235	236790	379.66	48.97	342.63	104.28	
10	TOLEDO, OHIO									
11	(TOLEDO EXPRESS)									
12	0.12	7703	7872	7658	336728	751.21	25.33	1180.96	.04	
13	WICHITA, KANSAS									
14	(WICHITA MUNI)									
15	0.21	17364	17622	17234	572032	3141.82	105.46	2853.40	9.06	
16	YOUNGSTOWN, OHIO									
17	(YOUNGSTOWN MUNI)									
18	0.05	3960	4085	3894	137397	212.99	14.09	101.09	.03	
19	OVER-ALL TOTAL									
20	SMALL HUBS	658847	665651	647966	25823492	115568.69	3159.16	51431.22	3948.63	1.11
21										
22										
23										
24										
25										
26										
27										
28										
29										
30										
31										
32										
33										
34										
35										
36										
37										
38										
39										
40										
41										
42										
43										
44										
45										
46										
47										
48										
49										
50										
51										
52										
53										
54										
55										
56										
57										
58										
59										
60										
61										
62										
63										
64										
65										
66										
67										
68										
69										
70										
71										
72										
73										
74										
75										
76										
77										
78										
79										
80										
81										
82										
83										
84										
85										
86										
87										
88										
89										
90										
91										
92										
93										
94										
95										
96										
97										
98										
99										
100										
101										
102										
103										
104										
105										
106										
107										
108										
109										
110										
111										
112										

TABLE 4.10

DOMESTIC INTERCITY PASSENGER-MILES BY MODE OF TRAVEL AND CLASS OF SERVICE: 1969 THROUGH 1978  
(In Millions)

Mode and Class	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Total	<u>1,105,469</u>	<u>1,161,625</u>	<u>1,207,341</u>	<u>1,277,070</u>	<u>1,323,770</u>	<u>1,232,924</u>	<u>1,285,379</u>	<u>1,363,218</u>	<u>1,433,920(r)</u>	<u>1,518,125</u>
Total common carrier	<u>128,469</u>	<u>135,625</u>	<u>136,341</u>	<u>148,070</u>	<u>157,770</u>	<u>161,924</u>	<u>162,379</u>	<u>176,218</u>	<u>188,020(r)</u>	<u>213,625</u>
Scheduled air carrier <sup>1</sup>	95,946	104,146	106,438	118,138	126,317	128,425	131,728	145,271	156,610	182,669
Regular service	20,186	19,797	19,370	21,956	23,564	24,602	23,622	24,400	25,441	29,665
Coach service	75,760	84,349	87,068	96,182	102,753	103,823	108,106	120,871	131,169	153,004
Class I lime-haul railways	7,623	6,179	4,403	4,332	5,053	5,799	5,251	5,847	5,710	5,556
First-class service	1,021	765	516	520	583	613	502	570	524	467
Coach service	6,602	5,414	3,887	3,812	4,470	5,186	4,749	5,277	5,186	5,089
Motor carriers <sup>3</sup> Class I, II, III	24,900	25,300	25,500	25,600	26,400	27,700	25,400	25,100	25,700(r)	25,400
Private automobiles <sup>4</sup>	<u>977,000</u>	<u>1,026,000</u>	<u>1,071,000</u>	<u>1,129,000</u>	<u>1,166,000</u>	<u>1,071,000</u>	<u>1,123,000</u>	<u>1,187,000</u>	<u>1,245,900(r)</u>	<u>1,304,500</u>
Percent air to total	8.7	9.0	8.8	9.3	9.5	10.4	10.3	10.6	10.9	12.0
Percent air to total common carrier	74.7	76.8	78.1	79.8	80.1	79.3	81.1	82.4	83.3	85.5
Percent total rail to air	7.9	5.9	4.1	3.7	4.0	4.5	4.0	4.0	3.6	3.0
Percent first-class rail to total air	1.0	0.7	0.5	0.4	0.5	0.5	0.4	0.4	0.3	0.3

1 Scheduled operations of domestic trunk and local service carriers.

2 Includes Pullman Company and excludes commutation.

3 Excludes intrastate and other local movements. Series revised to include Alaska and Hawaii.

4 Series revised to include Alaska and Hawaii.

(r) Revised

Source: Interstate Commerce Commission, Bureau of Economics; Bureau of Accounts and Statistics, CAB; and Transportation Facts and Trends, July 1978.

# V. U.S. CIVIL AIR CARRIER FLEET

Data pertaining to the U.S. civil air carrier fleet are obtained from the Monthly Aircraft/Engine Utilization Reports submitted by the air carrier operators. The U.S. air carrier fleet (for these statistics) is comprised of: (1) certificated route air carriers, (2) supplemental carriers, and (3) commercial operators of large aircraft.

TABLE 5.1

COMPOSITION OF THE U.S. AIR CARRIER FLEET BY TYPE OF AIRCRAFT  
AND NUMBER OF ENGINES: DECEMBER 31, 1978 THROUGH 1983 AND 1989\*

Type of Aircraft	Dec. 31 1978	Forecast Air Carrier Fleet: December 31					
		1979	1980	1981	1982	1983	1989
Total	2,545	2,581	2,620	2,668	2,716	2,764	3,049
Fixed-wing aircraft--total	2,542	2,577	2,615	2,663	2,710	2,758	3,041
Turbojet	2,237	2,310	2,366	2,432	2,497	2,563	2,960
2-engine	582	643	703	769	836	906	1,069
3-engine	1,146	1,178	1,210	1,230	1,238	1,277	1,476
4-engine	509	489	453	433	403	380	415
Turboprop	240	217	207	197	187	177	81
2-engine	173	166	160	154	148	142	61
4-engine	67	51	47	43	39	35	20
Piston	65	50	42	34	26	18	--
1- and 2-engine	23	26	24	22	20	18	--
4-engine	42	24	18	12	6	--	--
Rotary-wing--total	3	4	5	6	6	6	8
Turbine	3	4	5	6	6	6	8
Piston	--	--	--	--	--	--	--

\*Does not include aircraft operated by air taxi operators who hold authority to operate aircraft over 12,500 pounds, turbojet aircraft under blanket authority or aircraft operated by air travel clubs. These aircraft are shown in separate tables.

NOTE: Included in the forecast are all passenger and cargo aircraft owned or leased by and in the domestic or international service of the United States certified route, supplemental, intrastate, and commercial air carriers. Aircraft used for training and aircraft that have been withdrawn from service and are awaiting disposal are not included here.

Source: Aviation Forecast: Fiscal Years 1979 through 1990, Aviation Forecast Branch, Office of Aviation Economics, Federal Aviation Administration, Department of Transportation.



TABLE 5.2

COMPOSITION OF U.S. AIR CARRIER FLEET BY TYPE OF AIRCRAFT:  
DECEMBER 1969 THROUGH 1978\*

Year	Total	Fixed-wing Aircraft					Rotary-Wing Aircraft		
		Total Fixed-Wing	Turbine			Piston	Total Rotary-Wing	Turbine	Piston
			Total	Turbojet	Turboprop				
1969	2,690	2,672	2,448	2,068	380	224	18	15	3
1970	2,679	2,663	2,510	2,136	374	153	16	13	3
1971	2,642	2,628	2,482	2,132	350	146	14	11	3
1972	2,583	2,569	2,436	2,118	318	133	14	11	3
1973	2,599	2,586	2,449	2,145	304	137	13	10	3
1974	2,472	2,462	2,344	2,078	266	118	10	10	—
1975	2,495	2,488	2,374	2,114	260	114	7	7	—
1976	2,492	2,487	2,384	2,139	245	103	5	4	1
1977	2,473	2,470	2,402	2,168	234	68	3	3	—
1978	2,545	2,542	2,477	2,237	240	65	3	3	—

\*Includes only those aircraft used during the last quarter. Does not include aircraft operated by air taxi operators who hold authority to operate aircraft over 12,500 pounds, turbojet aircraft under blanket authority, or aircraft operated by air travel clubs. These aircraft are shown on separate tables.

TABLE 5.3

TOTAL AIRCRAFT IN OPERATION BY THE U.S. AIR CARRIER FLEET BY TYPE  
OF CARRIER AND BY TYPE OF AIRCRAFT: DECEMBER 1977 AND 1978\*

Type of Aircraft	All Air Carriers		Certificated Route Air Carriers		Supplemental Air Carriers		Commercial Operators	
	1977	1978	1977	1978	1977	1978	1977	1978
Total	2,473	2,545	2,234	2,348	78	74	161	123
Fixed-wing--total	2,470	2,542	2,231	2,345	78	74	161	123
Turbine powered-- total	2,402	2,477	2,220	2,339	72	68	110	70
Turbojet--total	2,168	2,237	2,064	2,184	44	35	60	18
4-engine	544	509	500	465	36	26	8	18
3-engine	1,069	1,146	1,035	1,140	5	6	29	---
2-engine	555	582	529	579	3	3	23	---
Turboprop--total	234	240	156	155	28	33	50	52
4-engine	60	67	6	9	23	26	31	32
2-engine	174	173	150	146	5	7	19	20
Piston-powered--total	68	65	11	6	6	6	51	53
4-engine	33	42	---	---	2	3	31	39
2-engine	34	21	11	4	4	3	19	14
1-engine	1	2	---	2	---	---	1	---
Rotary-wing--total	3	3	3	3	---	---	---	---
Turbine-powered	3	3	3	3	---	---	---	---
Piston-powered	---	---	---	---	---	---	---	---

\*Does not include aircraft operated by air taxi operators who hold authority to operate aircraft over 12,500 pounds, turbojet aircraft under blanket authority or aircraft operated by air travel clubs. These aircraft are shown in separate tables.

TABLE 5.4

COMPOSITION OF U.S. AIR CARRIER FLEET BY TYPE OF AIRCRAFT,  
NUMBER OF ENGINES, AND MODEL: DECEMBER 31, 1977 and 1978\*

Type of Aircraft Number of Engines and Model	1978	1977	Type of Aircraft Number of Engines and Model	1977	1978
Total aircraft	<u>2,545</u>	<u>2,473</u>	DeHavilland DHC6	13	14
Fixed-wing aircraft--total	<u>2,542</u>	<u>2,470</u>	Fairchild F27	7	4
Turbine-powered--total	<u>2,477</u>	<u>2,402</u>	Fairchild F227	23	22
4-engine--total	<u>576</u>	<u>604</u>	Grumman G159	1	1
Turbojet--total	<u>509</u>	<u>544</u>	Hawker Siddley HS748	1	1
Boeing 707	<u>201</u>	<u>225</u>	Nihon YS11	19	23
Boeing 720	14	18	Nord ND262	9	5
Boeing 747	115	108	Swearingen SA226	8	6
Douglas DC8	178	193	Short SHD330	1	---
Lockheed L1329	1	---			
Turboprop--total	<u>67</u>	<u>60</u>	Piston-powered--total	<u>65</u>	<u>68</u>
Lockheed L188	<u>46</u>	<u>40</u>	4-engine--total	<u>42</u>	<u>33</u>
Lockheed L382	21	20	Douglas DC4	<u>2</u>	<u>1</u>
3-engine--total	<u>1,146</u>	<u>1,069</u>	Douglas DC6	39	30
Boeing 727	<u>931</u>	<u>865</u>	Douglas DC7	---	1
Douglas DC10	133	127	Lockheed L1049	1	1
Lockheed 1011	82	77			
2-engine--total	<u>755</u>	<u>729</u>	2-engine--total	<u>21</u>	<u>34</u>
Turbojet--total	<u>582</u>	<u>555</u>	Cessna C402	<u>1</u>	<u>---</u>
Airbus A300	<u>6</u>	<u>2</u>	Convair CV340/440	---	6
Boeing 737	173	160	Curtiss Wright CW46	10	15
British Aircraft Corp. BAC111	30	31	DeHavilland DHC4	2	---
Douglas DC9	373	362	Douglas DC3	2	3
Turboprop--total	<u>173</u>	<u>174</u>	Fairchild C82	2	2
Convair CV580	<u>69</u>	<u>76</u>	Grumman G21	1	---
Convair CV600	8	8	Martin M404	3	8
Convair CV640	14	14			
			1-engine--total	<u>2</u>	<u>1</u>
			Cessna C185	---	<u>1</u>
			Cessna C206	1	---
			Cessna C207	1	---
			Rotary-wing aircraft--total	<u>3</u>	<u>3</u>
			Turbine-powered--total	<u>3</u>	<u>3</u>
			Sikorsky S61	<u>3</u>	<u>3</u>

\*Includes only those aircraft used during the last quarter. Does not include aircraft operated by air taxi operators who hold authority to operate aircraft over 12,500 pounds, turbojet aircraft under blanket authority or aircraft operated by air travel clubs. These aircraft are shown in separate tables.



TABLE 5.5

AIRCRAFT IN OPERATION BY CERTIFICATED ROUTE AIR CARRIERS BY TYPE OF AIRCRAFT  
AND NUMBER OF ENGINES: DECEMBER 1969 THROUGH 1978\*

Type of Aircraft	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Total	<u>2,423</u>	<u>2,437</u>	<u>2,389</u>	<u>2,361</u>	<u>2,361</u>	<u>2,244</u>	<u>2,267</u>	<u>2,271</u>	<u>2,234</u>	<u>2,348</u>
Fixed-wing--total	<u>2,405</u>	<u>2,421</u>	<u>2,375</u>	<u>2,347</u>	<u>2,348</u>	<u>2,234</u>	<u>2,260</u>	<u>2,266</u>	<u>2,231</u>	<u>2,345</u>
4-engine	<u>919</u>	<u>951</u>	<u>879</u>	<u>793</u>	<u>735</u>	<u>612</u>	<u>578</u>	<u>556</u>	<u>506</u>	<u>474</u>
Turbojet	840	891	847	768	712	594	561	533	500	465
Turboprop	61	55	29	22	20	17	16	21	6	9
Piston	18	5	3	3	3	1	1	2	--	--
3-engine	<u>605</u>	<u>631</u>	<u>651</u>	<u>738</u>	<u>844</u>	<u>893</u>	<u>961</u>	<u>992</u>	<u>1,035</u>	<u>1,140</u>
2-engine	<u>870</u>	<u>825</u>	<u>831</u>	<u>803</u>	<u>754</u>	<u>717</u>	<u>714</u>	<u>708</u>	<u>690</u>	<u>729</u>
Turbojet	528	519	530	522	500	501	500	518	529	579
Turboprop	261	256	255	234	218	184	177	159	150	146
Piston	81	50	46	47	36	32	37	31	11	4
1-engine	<u>11</u>	<u>14</u>	<u>14</u>	<u>13</u>	<u>15</u>	<u>12</u>	<u>7</u>	<u>10</u>	<u>---</u>	<u>2</u>
Turboprop	<u>5</u>	<u>5</u>	<u>3</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>
Piston	6	9	11	13	15	12	7	10	<u>---</u>	<u>2</u>
Rotary-wing--total	<u>18</u>	<u>16</u>	<u>14</u>	<u>14</u>	<u>13</u>	<u>10</u>	<u>7</u>	<u>5</u>	<u>3</u>	<u>3</u>
Turbine	15	13	11	11	10	10	7	4	3	3
Piston	3	3	3	3	3	<u>---</u>	<u>---</u>	1	<u>---</u>	<u>---</u>

\*Excludes aircraft not used in air carrier operations (such as those used for crew training and general utility purposes and aircraft held for disposal).

TABLE 5.6

AIRCRAFT IN OPERATION BY CERTIFICATED ROUTE AIR CARRIERS BY MANUFACTURER AND MODEL  
DECEMBER 31, 1969 THROUGH 1978\*

Aircraft Make and Model	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Total	2,423	2,437	2,389	2,361	2,361	2,244	2,267	2,271	2,234	2,348
Turbojet--4-engine--total	840	891	847	768	712	594	561	533	500	465
Boeing 707	417	399	359	337	315	281	264	240	244	198
Boeing 720	127	115	106	56	44	30	23	18	15	10
Boeing 747	1	79	104	105	109	108	97	104	107	115
Convair 880	41	41	41	41	37	---	---	---	---	---
Douglas DC8	254	257	236	227	207	180	177	171	154	142
Lockheed L1329	---	---	1	1	---	---	---	---	---	---
Turbojet--3-engine--total	605	631	651	738	844	893	961	992	1,035	1,140
Boeing 727	605	631	638	662	710	724	765	793	836	931
Douglas DC10	---	---	13	59	86	103	121	122	122	127
Lockheed L1011	---	---	---	17	48	66	76	77	77	82
Turbojet--2-engine--total	528	519	530	522	500	501	500	518	529	579
Airbus A300	---	---	---	---	---	---	---	---	2	6
BAC111	60	59	58	58	31	36	30	31	31	30
Boeing 737	132	133	133	134	134	136	133	138	141	173
Dassault MD20	---	---	5	1	---	---	---	---	---	---
Douglas DC9	316	327	334	329	335	329	337	349	355	370
Sud Caravelle	20	---	---	---	---	---	---	---	---	---
Turboprop--4-engine--total	61	55	29	22	20	17	16	21	6	9
Canadair CL44	9	8	1	---	---	---	---	---	---	---
Lockheed L188	40	36	24	19	19	17	16	21	6	9
Lockheed L382	9	8	4	3	1	---	---	---	---	---
Vickers Viscount	3	3	---	---	---	---	---	---	---	---
Turboprop--2-engine--total	266	261	258	234	218	184	177	159	150	146
Beech BE99	---	3	5	1	---	---	3	3	---	---
Convair CV580/640	143	118	115	110	105	89	69	69	68	60
Convair 600	---	24	22	25	24	16	19	12	8	8
DeHavilland DHC6	9	6	8	13	9	8	21	18	14	13
Fairchild FH227	53	47	48	32	31	33	29	27	22	23
Fairchild FH27	36	35	34	29	24	15	10	7	4	5
Nihon YS11	17	21	21	22	23	21	23	23	23	19
Nord ND262	---	---	---	---	---	---	---	---	5	9
Pilatus PC6A, 6B	5	5	3	---	---	---	---	---	---	---
Short SC7	3	2	2	2	2	2	3	---	---	---
Short SHD330	---	---	---	---	---	---	---	---	---	1
Swearingen SA226	---	---	---	---	---	---	---	---	6	8
Piston--4-engine--total	18	5	3	3	3	1	1	2	---	---
Douglas DC6, 6A, 6B	7	3	3	3	3	1	1	2	---	---
Douglas DC7, 7B, 7C	10	2	---	---	---	---	---	---	---	---
Lockheed L1049	1	---	---	---	---	---	---	---	---	---
Piston--2-engine--total	81	50	46	47	36	32	37	31	11	4
Piston--1-engine--total	6	9	11	13	15	12	7	10	---	2
Helicopters--total	18	16	14	14	13	10	7	5	3	3

\*Aircraft not used in air carrier operations, such as those used for crew training and general utility purposes and aircraft held for disposal are excluded.

TABLE 5.7

TOTAL FLIGHT TIME BY TYPE OF AIRCRAFT  
IN THE U.S. CARRIER FLEET: 1977 and 1978

Type of Aircraft Number of Engines and Model	Hours		Type of Aircraft Number of Engines and Model	Hours	
	1978*	1977		1978	1977
Total aircraft	6,984,816	6,684,622	Rockwell International NA265	1,197	613
Total fixed-wing	6,980,252	6,677,199	Sud Aviation-S210	925	116
Turbine-powered--total	6,814,252	6,502,075	Turboprop--total	383,487	353,444
Four-engine--total	1,693,251	1,770,950	Beech B99	—	143
Turbojet--total	1,555,849	1,644,925	Cessna C212	256	—
Boeing 707	592,885	670,239	Convair CV580	134,105	139,083
Boeing 720	39,072	59,901	Convair CV600	12,405	9,952
Boeing 747	418,177	405,014	Convair CV640	14,930	16,203
Convair CV22	307	603	DeHavilland DHC6	26,768	30,272
Douglas DC8	504,868	511,797	DeHavilland DHC7	2,905	—
Lockheed L1329	540	371	Fairchild F27	9,514	9,172
Turboprop--total	137,402	126,025	Fairchild F227	38,455	37,203
Lockheed L188	79,422	68,514	Grumman G159	5,842	3,211
Lockheed L382	57,980	57,511	Hawker Siddley HS748	2,067	2,111
Three-engine--total	3,159,647	2,916,795	Nord ND262	51,984	40,575
Boeing B727	2,509,204	2,303,950	Nihon YS11	51,925	56,747
Douglas DC10	409,816	390,646	Short SD330	5,519	3,465
Lockheed L1011	240,627	222,199	Short SD3	8,170	953
Twin-engine--total	1,961,354	1,814,330	Swearingen SA226	18,642	4,354
Turbojet--total	1,577,867	1,460,886	Piston-powered--total	166,000	175,124
Airbus A300	11,431	1,128	Four-engine--total	36,956	36,205
Boeing B737	412,829	358,152	Douglas DC4	4,759	1,473
British Aircraft Corp. BAC111	76,624	75,260	Douglas DC6	31,958	34,356
Convair CV30	2,202	1,792	Douglas DC7	—	231
Dassault MD20	59,448	71,785	Lockheed L1049	239	145
DeHavilland DHC125	583	1,024	Twin-engine--total	128,523	134,030
Douglas DC9	993,765	937,826	Britten-Norman BN2A	—	4,409
Grumman G1159	2,839	2,310	Aero Commander AC680	—	856
Hamburger Flugzeugbau HF320	2,933	1,415	Beech BE18	31	395
Israel Aircraft WW23	269	—	Cessna CE402	64	272
Israel Aircraft WW24	83	—	Convair CV240	367	—
Learjet LR23	—	300	Convair CV340/440	12,011	8,232
Learjet LR24	229	141	Curtiss Wright CW46	8,708	12,432
Learjet LR25	8,036	5,643	DeHavilland DH4	527	—
Learjet LR35	4,284	3,381	Dornier DO28	—	448
Learjet LR36	190	—	Douglas DC3	94,597	88,836
			Fairchild C82	1,856	1,764
			Grumman G21	114	1,893
			Grumman G44	11	1,103



TABLE 5.7 (Continued)

TOTAL FLIGHT TIME BY TYPE OF AIRCRAFT  
IN THE U.S. CARRIER FLEET: 1977 and 1978

Type of Aircraft Number of Engines and Model	Hours		Type of Aircraft Number of Engines and Model	Hours	
	1978	1977		1978	1977
Martin M404	10,337	13,203	DeHavilland DHC2	--	828
Piper PA23	--	31	DeHavilland DHC3	--	243
Piper PA34	--	156	Total rotary-wing	<u>4,564</u>	<u>7,423</u>
Single-engine--total	<u>421</u>	<u>4,889</u>	Turbine-powered--total	<u>4,564</u>	<u>7,423</u>
Cessna CE185	--	565	Sikorsky S61	<u>4,564</u>	<u>7,423</u>
Cessna CE206	89	1,343			
Cessna CE207	332	1,910			

\*Includes 6,242,690 hours for Certificated Route Air Carriers; 184,664 hours for Supplemental Carriers; 275,396 hours for Commercial Carriers; 276,102 hours for Air Taxi and 5,964 hours for Air Travel Clubs.

TABLE 5.8

TOTAL FIXED WING AIRCRAFT IN CERTIFICATED ROUTE AIR CARRIER OPERATIONS  
BY CARRIER AND BY ENGINE TYPE: DECEMBER 31, 1978

Air Carrier Group and Carrier	Total Turbine and Piston	Turbine						Piston			
		Total Turbine	Turbojet			Turboprop		Total Piston	4-Engine	2-Engine	1-Engine
			4-Engine	3-Engine	2-Engine	4-Engine	2-Engine				
Total	2,345	2,339	465	1,140	579	9	146	6	---	4	2
Trunk carriers--total	1,645	1,645	342	1,069	234	---	---	---	---	---	---
American	103	103	83	164	---	---	---	---	---	---	---
Braniff	65	65	18	85	---	---	---	---	---	---	---
Continental	206	206	23	133	50	---	---	---	---	---	---
Delta	245	245	---	156	89	---	---	---	---	---	---
Eastern	54	54	---	54	---	---	---	---	---	---	---
National	104	104	21	83	---	---	---	---	---	---	---
Northwest	203	203	94	95	14	---	---	---	---	---	---
Trans World	339	339	88	192	59	---	---	---	---	---	---
United	79	79	15	42	22	---	---	---	---	---	---
Western											
Local service	500	500	---	47	321	7	125	---	---	---	---
carriers-- total	13	13	---	---	10	3	---	---	---	---	---
Air California	7	7	---	---	7	---	---	---	---	---	---
Air Florida	18	18	---	---	---	---	18	---	---	---	---
Air New England	92	92	---	7	76	---	9	---	---	---	---
Allegheny	61	61	---	---	31	---	30	---	---	---	---
Frontier	48	48	---	---	---	---	4	---	---	---	---
Hughes Air West	58	58	---	4	40	---	23	---	---	---	---
North Central	45	45	---	---	35	---	13	---	---	---	---
Ozark			---	---	32	---	---	---	---	---	---
Pacific Southwest			---	---	---	---	---	---	---	---	---
Airlines	34	34	---	30	---	4	---	---	---	---	---
Piedmont Aviation	44	44	---	6	21	---	17	---	---	---	---
Southern	38	38	---	---	30	---	8	---	---	---	---
Southwest Airlines	13	13	---	---	13	---	---	---	---	---	---
Texas International	29	29	---	---	26	---	3	---	---	---	---
Intra-Alaska carriers--											
total	29	23	---	9	7	2	5	6	---	4	2
Alaska Airlines	9	9	---	9	---	---	---	---	---	---	---
Kodiak-Western	4	---	---	---	---	---	---	4	---	2	---
Alaskan Airlines	6	4	---	---	---	---	---	2	---	---	---
Reeve Aleutian	10	10	---	---	7	---	3	2	---	---	---
Wien Air Alaska			---	---	---	---	---	---	---	---	---
Intra Hawaii carriers--											
total	18	18	---	---	17	---	1	---	---	---	---
Aloha	8	8	---	---	8	---	---	---	---	---	---
Hawaiian	10	10	---	---	9	---	---	---	---	---	---

TABLE 5.8 (Continued)

TOTAL FIXED WING AIRCRAFT IN CERTIFICATED ROUTE AIR CARRIER OPERATIONS  
BY CARRIER AND BY ENGINE TYPE: DECEMBER 31, 1978

Air Carrier Group and Carrier	Total Turbine and Piston	Turbine					Piston				
		Total Turbine	Turbojet			Turboprop		Total Piston	4-Engine	2-Engine	1-Engine
			4-Engine	3-Engine	2-Engine	4-Engine	2-Engine				
International and territorial passen- ger/cargo--total	92 92	92 92	79 79	13 13	---	---	---	---	---	---	---
Pan American											
All cargo carriers-- total	46	46	44	2	---	---	---	---	---	---	---
Airlift Inter- national	11	11	10	1	---	---	---	---	---	---	---
Flying Tiger	26	26	26	---	---	---	---	---	---	---	---
Seaboard World	9	9	8	1	---	---	---	---	---	---	---
Other---total	15	15	---	---	---	---	---	---	---	---	---
Aspen	10	10	---	---	---	---	---	---	---	---	---
Wright	5	5	---	---	---	---	---	---	---	---	---



TABLE 5.9

FOUR-ENGINE TURBINE-POWERED FIXED-WING AIRCRAFT IN CERTIFIED ROUTE AIR CARRIER OPERATIONS  
BY CARRIER AND BY MANUFACTURER AND MODEL: DECEMBER 31, 1978

Carrier Group and Carrier	Total 4-Engine Turbine Aircraft	Turbojet				Total Turbo-prop Lockheed L188
		Total Turbojet	Boeing		Douglas DC8	
			707/720	747		
Total	474	465	208	115	142	9
Trunk carriers--total	342	342	173	62	107	---
American	83	83	73	10	---	---
Braniff	18	18	---	4	14	---
Delta	23	23	---	---	23	---
Northwest	21	21	---	21	---	---
Trans World	94	94	85	9	---	---
United	88	88	---	18	70	---
Western	15	15	15	---	---	---
Local service carriers--total	7	---	---	---	---	7
Air California	3	---	---	---	---	3
Pacific Southwest Airlines	4	---	---	---	---	4
Intra Alaskan carriers--total	2	---	---	---	---	2
Reeve Aleutian	2	---	---	---	---	2
Intra-Hawaii carriers--total	---	---	---	---	---	---
International and territorial passenger/cargo--total	79	79	35	44	---	---
Pan American	79	79	35	44	---	---
All cargo carriers--total	44	44	---	9	35	---
Airlift International	10	10	---	---	10	---
Flying Tiger	26	26	---	6	20	---
Seaboard World	8	8	---	3	5	---

TABLE 5.10

TWO- AND THREE-ENGINE TURBINE-POWERED FIXED-WING AIRCRAFT IN CERTIFICATED  
AIR CARRIER OPERATIONS BY CARRIER AND BY MANUFACTURER AND MODEL: DECEMBER 31, 1978\*

Carrier Group and Carrier	Total Turbine Aircraft	Turbojet				2-Engine Aircraft				Turboprop			
		Total 2- & 3- Engine Aircraft	3-Engine Aircraft			B727			Other	Total	CV580/600	F27/F227	Other
			DC10	L1011	B727	B737	DC9	Other					
Total	1,865	1,719	127	82	931	173	370	36	146	68	28	50	
Trunk carriers--total**	1,303	1,303	126	82	861	81	147	6					
American	164	164	28		136								
Braniff	85	85			85								
Continental	65	65	15		50								
Delta	183	183		26	107		50						
Eastern	245	245		32	124		83	6					
National	54	54	15		39								
Northwest	83	83	22		61								
Trans World	109	109		24	71		14						
United	251	251	37		155	59							
Western	64	64	9		33	22							
Local service carriers--total	493	368			47	77	214	30	125	53	25	47	
Air California	10	10				10							
Air Florida	7	7				2	5						
Air New England	18								18			8	10
Allegheny	92	83			7		46	30	9			9	3
Frontier	61	31				31			30	27		4	
Hughes Air West	48	44			4		40		4				
North Central	58	35					35		23			13	
Ozark	45	32					32		17				17
Pacific Southwest Airlines	30	30			30	21			8				8
Piedmont Aviation	44	27			6				3				
Southern	38	30				13							
Southwest Airlines	13	13					26						
Texas International	29	26											
Intra-Alaska carriers--total	21	16			9	7			5		3	2	
Alaska Airlines	9	9			9								
Reeve Aleutian	2								2				
Wien Air Alaska	10	7				7			3				
Intra Hawaii carriers--total	18	17				8	9		1			1	
Aloha	8	8				8							
Hawaiian	10	9					9		1				
International/territorial passenger/cargo--total	13	13			13								
Pan American	13	13											
Air cargo carriers--total	2	2	1		1								
Airlift International	1	1											
Seaboard World	1	1											
Other--total	15								15	15	15	15	
Aspen	10								10	10	10	10	
Wright	5								5	5	5	5	

\*All carriers constituting this group are listed in Table 5.10.

\*\*All trunk carriers except United have both domestic and international/territorial operating certificates.

TABLE 5.11

PISTON-POWERED AIRCRAFT IN CERTIFICATED ROUTE  
 AIR CARRIER OPERATIONS BY CARRIER AND BY  
 MANUFACTURER AND MODEL: DECEMBER 31, 1978\*

Carrier Group and Carrier	Total Piston Aircraft	2-Engine		1-Engine
		G21/44 BE18	Other	Cessna 185/206/207
Total	<u>6</u>	<u>1</u>	<u>3</u>	<u>2</u>
Local service carriers--total	---	---	---	---
Intra-Alaskan carriers--total	<u>6</u>	<u>1</u>	<u>3</u>	<u>2</u>
Kodiak-Western Alaska Airlines	4	1(a)	1(b)	2(c)
Reeve Aleutian	2	---	2(d)	---
Other--total	---	---	---	---

\*All carriers constituting this group are listed in Table 5.10.

(a)Grumman G21.

(b)Cessna 402.

(c)Cessna 207 (1) and Cessna 206 (1).

(d)Curtiss-Wright CW46.



TABLE 5.12

HELICOPTERS IN CERTIFICATED ROUTE AIR CARRIER OPERATIONS  
BY CARRIER AND BY  
MANUFACTURER AND MODEL: DECEMBER 31, 1978

Carrier	Total	Turbine Sikorsky S61
Total	<u>3</u>	<u>3</u>
New York Airway	3	3

TABLE 5.13

AIRCRAFT IN OPERATION BY SUPPLEMENTAL CARRIERS BY TYPE OF AIRCRAFT:  
DECEMBER 1969-1978

Type of Aircraft	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Total aircraft in operation	149	119	114	100	94	73	74	77	78	74
4-engine--total	106	94	92	85	79	58	60	69	61	55
Turbojet	44	40	42	42	37	32	33	42	36	26
Turboprop	37	48	47	43	41	26	27	27	23	26
Piston	25	6	3	---	1	---	---	---	2	3
3-engine--total	9	9	9	4	9	7	8	3	5	6
Turbojet	9	9	9	4	9	7	8	3	5	6
2-engine--total	34	16	13	11	6	8	6	5	12	13
Turbojet	10	11	8	7	5	5	4	3	3	3
Turboprop	---	---	---	1	1	---	---	1	5	7
Piston	24	5	5	3	---	3	2	1	4	3

TABLE 5.14  
AIRCRAFT IN OPERATION BY SUPPLEMENTAL CARRIERS, BY CARRIER AND BY MANUFACTURER AND MODEL  
DECEMBER 31, 1978

Name of Carrier	Total Aircraft	Turbojet			Turboprop		Piston	
		4-Engine	3-Engine	2-Engine	4-Engine	2-Engine	4-Engine	2-Engine
		DC 8	DC 10	DC 9	L188, L382	CV 580	DC 6	OM 46
Total	74	26	6	3	26	7	3	3
Capitol International Airways	10	10	--	--	--	--	--	--
Evergreen International Airlines	19	5	--	3	4(a)	7	--	--
Rich International	6	--	--	--	--	--	3	3
Trans International Airlines	33	8	3	--	22(b)	--	--	--
World Airways	6	3	3	--	--	--	--	--

(a)Lockheed L188

(b)Lockheed L188 (9); L382 (13)



TABLE 5.15

AIRCRAFT IN OPERATION BY COMMERCIAL CARRIERS BY TYPE OF AIRCRAFT:  
DECEMBER 31, 1969 THROUGH 1978

Aircraft Type	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Total aircraft in operation	<u>118</u>	<u>123</u>	<u>139</u>	<u>122</u>	<u>144</u>	<u>155</u>	<u>154</u>	<u>144</u>	<u>161</u>	<u>123</u>
4-engine--total	<u>36</u>	<u>30</u>	<u>39</u>	<u>39</u>	<u>52</u>	<u>60</u>	<u>69</u>	<u>63</u>	<u>70</u>	<u>89</u>
Turbojet	<u>2</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>6</u>	<u>8</u>	<u>7</u>	<u>8</u>	<u>18</u>
Turboprop	13	7	13	14	13	24	25	21	31	32
Piston	21	23	25	24	38	30	36	35	31	39
3-engine--total	<u>14</u>	<u>19</u>	<u>18</u>	<u>17</u>	<u>26</u>	<u>23</u>	<u>25</u>	<u>27</u>	<u>29</u>	<u>---</u>
Turbojet	<u>14</u>	<u>19</u>	<u>18</u>	<u>17</u>	<u>26</u>	<u>23</u>	<u>25</u>	<u>27</u>	<u>29</u>	<u>---</u>
2-engine--total	<u>68</u>	<u>74</u>	<u>82</u>	<u>66</u>	<u>66</u>	<u>72</u>	<u>59</u>	<u>53</u>	<u>61</u>	<u>34</u>
Turbojet	<u>16</u>	<u>16</u>	<u>26</u>	<u>19</u>	<u>11</u>	<u>17</u>	<u>14</u>	<u>14</u>	<u>23</u>	<u>---</u>
Turboprop	3	3	3	4	11	15	15	16	19	20
Piston	49	55	53	43	44	40	30	23	19	14
1-engine--total	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>---</u>
Piston	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>---</u>	<u>1</u>	<u>1</u>	<u>1</u>	<u>---</u>

TABLE 5.16

AIRCRAFT IN OPERATION BY COMMERCIAL AIR CARRIER OPERATORS BY CARRIER AND BY TYPE OF AIRCRAFT:  
DECEMBER 31, 1978

Name of Carrier	Total Aircraft	Turbojet		Turboprop		Piston		
		4- and 3-Engine	2-Engine	4-Engine	2-Engine	4-Engine	2-Engine	1-Engine
Total	123	18	---	32	20	39	14	---
Aeroamerica, Inc.	4	4	---	---	---	---	---	---
Air Distribution, Inc.	2	---	---	---	---	2	---	---
Air Illinois, Inc.	1	---	---	---	1	---	---	---
Alaska International Air, Inc.	5	---	---	5	---	---	---	---
Central America International, Inc.	2	---	---	---	---	1	1	---
Challenge Air Transport, Inc.	1	---	---	---	---	---	---	---
Concord International Airlines	3	1	---	---	---	2	---	---
Fairways Corporation	1	---	---	---	1	---	---	---
Fleming International Airways	5	---	---	5	---	---	---	---
General Mills, Inc.	1	1	---	---	---	---	---	---
Global Int. Airways Corp.	1	1	---	---	---	---	---	---
Great Northern Airlines, Inc.	4	---	---	4	---	---	---	---
Inter Continental Airways	1	1	---	---	---	---	---	---
Mark Air Transport	3	---	---	---	---	3	---	---
Maverick International, Inc.	2	2	---	---	---	---	---	---
Mountainwest Aviation, Inc.	2	---	---	---	2	---	---	---
Northern Air Cargo, Inc.	5	---	---	---	---	3	2	---
Pacific Alaska Airlines	4	---	---	---	2	2	---	---
Petroleum Air Transport, Inc.	8	4	---	---	---	5	3	---
Rosenbalm Aviation, Inc.	4	---	---	---	---	---	---	---
Shaw Flight Service, Inc.	3	---	---	---	---	---	3	---
Southern Air Transport, Inc.	3	---	---	3	---	---	---	---
Transcontinental Airlines, Inc.	13	---	---	---	---	9	4	---
Zantop International Airlines	45	4	---	15	14	12	---	---

TABLE 5.17

AIRCRAFT IN OPERATION BY COMMERCIAL OPERATORS BY MANUFACTURER  
AND MODEL: DECEMBER 31, 1977 AND 1978

	<u>1977</u>	<u>1978</u>
Total Aircraft	<u>161</u>	<u>123</u>
Turbojet -- total	<u>60</u>	<u>18</u>
4-engine	<u>8</u>	<u>18</u>
Boeing B707	<u>1</u>	<u>3</u>
Boeing B720	<u>3</u>	<u>4</u>
Douglas DC8	<u>4</u>	<u>10</u>
Lockheed L1329	<u>—</u>	<u>1</u>
3-engine	<u>29</u>	<u>—</u>
Boeing 727	<u>29</u>	<u>—</u>
2-engine	<u>23</u>	<u>—</u>
Boeing 737	<u>10</u>	<u>—</u>
Douglas DC9	<u>13</u>	<u>—</u>
Turboprop -- total	<u>50</u>	<u>52</u>
4-engine	<u>31</u>	<u>32</u>
Lockheed L188	<u>23</u>	<u>24</u>
Lockheed L382	<u>8</u>	<u>8</u>
2-engine	<u>19</u>	<u>20</u>
Convair CV580	<u>3</u>	<u>2</u>
Convair CV640	<u>14</u>	<u>14</u>
Fairchild F27	<u>—</u>	<u>2</u>
Grumman G159	<u>1</u>	<u>1</u>
Hawker Siddley HS748	<u>1</u>	<u>1</u>
Piston -- total	<u>51</u>	<u>53</u>
4-engine	<u>31</u>	<u>39</u>
Lockheed 4049	<u>1</u>	<u>2</u>
Douglas 4	<u>28</u>	<u>36</u>
Douglas 6	<u>1</u>	<u>—</u>
Douglas 7	<u>1</u>	<u>1</u>
2-engine	<u>19</u>	<u>14</u>
Convair CV440	<u>2</u>	<u>—</u>
Curtiss-Wright CW46	<u>9</u>	<u>5</u>
Deltavalland DHC4	<u>—</u>	<u>2</u>
Fairchild C82	<u>2</u>	<u>2</u>
Martin M404	<u>3</u>	<u>3</u>
Douglas 3	<u>3</u>	<u>2</u>
1-engine	<u>1</u>	<u>—</u>
Cessna C185	<u>1</u>	<u>—</u>



TABLE 5.18

AIRCRAFT IN OPERATION BY AIR TAXI OPERATORS\*  
DECEMBER 31, 1978

Name of Carrier	Total All Engines	Turbojet		Turboprop		Piston		
		2-engine	3-engine	4-engine	2-engine	4-engine	2-engine	1-engine
Total	339	86	9	14	45	5	178	2
Academy Airlines	3	--	--	--	--	--	3	--
Aero-Dyne Airlines, Inc.	4	--	--	--	--	--	4	--
Aero Transit, Inc.	1	--	--	--	--	--	1	--
Aero Virgin Island Corp.	4	--	--	--	--	--	4	--
Airgo, Inc.	12	--	--	--	--	--	12	--
Air Logistics of Alaska	1	--	--	--	--	--	1	1
Air North, Inc.	1	--	--	--	--	--	1	--
Air Sunshine	6	--	--	--	--	--	6	--
Alaska Air Service, Inc.	1	--	--	--	--	--	1	--
Alpha Airlines, Inc.	1	--	--	--	--	--	1	--
Altair Airlines, Inc.	7	--	--	--	7	--	--	--
American Cynamid Co.	2	2	--	--	--	--	--	--
American Inter-island, Inc.	4	--	--	--	--	--	4	--
Argosy Airlines, Inc.	3	--	--	--	--	--	2	1
Atlantic Jet Charter, Inc.	2	1	--	--	1	--	--	--
ATT Airlines, Inc.	6	--	--	--	--	--	6	--
Aviation Methods, Inc.	1	1	--	--	--	--	--	--
Baron Aviation Services, Inc.	3	--	--	--	--	--	3	--
Basler Flight Services, Inc.	4	--	--	--	--	--	4	--
Boise Cascade Corp.	3	3	--	--	--	--	--	--
Bo-S-Aire Corp.	2	--	--	--	--	--	2	--
Caribbean Air Service	3	--	--	--	--	--	3	--
Century Airlines	4	--	--	--	--	--	4	--
Christler Flying Service, Inc.	2	--	--	--	--	--	2	--

TABLE 5.18 (Continued)

AIRCRAFT IN OPERATION BY AIR TAXI OPERATORS\*

DECEMBER 31, 1978

Name of Carrier	Total All Engines	Turbojet		Turboprop		Piston		
		2-engine	3-engine	4-engine	2-engine	4-engine	2-engine	1-engine
Chrysler Corp. Air Transportation	2	2	--	--	--	--	--	--
Combs Airways, Inc.	1	--	--	--	--	--	1	--
Command Airways, Inc.	2	--	--	--	2	--	--	--
Commuter Airlines, Inc.	3	--	--	--	3	--	--	--
Commuter Express	12	--	--	--	--	--	12	--
Crystal Shamrock, Inc.	2	--	--	--	--	--	2	--
DHL Island Airways	3	--	--	--	--	1	2	--
Emerald Airlines	1	--	--	--	1	--	--	--
Era Helicopters, Inc.	1	1	--	--	--	--	--	--
Executive Air Fleet Corp.	7	7	--	--	--	--	--	--
Falcon Airways, Inc.	7	--	--	--	--	2	5	--
Federal Express Corp.	41	32	9	--	--	--	--	--
Florida Airlines, Inc.	11	--	--	--	--	--	11	--
Florida Airmotives, Inc.	1	--	--	--	--	--	1	--
Frontier Flying Service, Inc.	1	--	--	--	--	--	1	--
Global Air Enterprises, Inc.	1	1	--	--	--	--	--	--
Golden State Airlines, Inc.	1	--	--	--	--	--	1	--
Golden West Airlines, Inc.	3	--	--	2	1	--	--	--
Great Western Airlines	1	--	--	--	1	--	--	--
Hawaiian Airlines Air Cargo Division	7	1	--	6	--	--	--	--
Henson Aviation, Inc.	3	--	--	2	1	--	--	--
International Air Service	2	2	--	--	--	--	--	--
Jet Executive International	2	2	--	--	--	--	--	--
Jet Fleet Corp.	15	14	--	--	1	--	--	--
Jimstair Aviation Services, Inc.	1	--	--	--	--	--	1	--

TABLE 5.18 (Continued)  
AIRCRAFT IN OPERATION BY AIR TAXI OPERATORS\*  
DECEMBER 31, 1978

Name of Carrier	Total All Engines	Turbojet		Turboprop		Piston		
		2-engine	3-engine	4-engine	2-engine	4-engine	2-engine	1-engine
Key Airlines, Inc.	5	---	---	---	---	---	5	---
Mackey International Airlines	2	---	---	---	---	1	1	---
Mannion Air Charter, Inc.	3	---	---	---	---	---	3	---
Marco Island Airways, Inc.	6	---	---	---	---	---	6	---
Midwest Air Charter, Inc.	7	6	---	1	---	---	---	---
Mountain West Charters, Inc.	1	---	---	---	---	---	1	---
Music City International Airways	2	---	---	---	---	---	2	---
Nation Jet Service, Inc.	2	---	---	---	---	---	2	---
Nevada Airlines, Inc.	3	---	---	---	---	---	3	---
Old South Air Service, Inc.	4	---	---	---	---	---	4	---
Pacific Aero, Inc.	1	---	---	---	---	---	1	---
Pinehurst Airlines, Inc.	6	---	---	---	---	---	6	---
Presidential Airways, Inc.	2	2	---	---	---	---	---	---
Professional Air Charter, Inc.	1	---	---	---	---	---	1	---
Provincetown-Boston Airline	13	---	---	---	---	---	13	---
Raleigh-Durham Aviation, Inc.	1	1	---	---	---	---	---	---
Ransome Airlines	10	---	---	---	10	---	---	---
Red Carpet Flying Service, Inc.	5	---	---	---	---	---	5	---
Rhoades International, Inc.	1	---	---	---	---	1	---	---
Rocky Mountain Airways	1	---	---	---	1	---	---	---
Royal Industries	1	1	---	---	---	---	---	---
Sedalia, Marshall, Boonville Stage Lines, Inc.	9	---	---	3	---	---	6	---
Sierra Pacific Airlines, Inc.	5	---	---	---	5	---	---	---
Skyfreight	1	---	---	---	---	---	1	---
Skyway Aviation, Inc.	2	---	---	---	---	---	2	---



TABLE 5.18 (Continued)  
AIRCRAFT IN OPERATION BY AIR TAXI OPERATORS\*  
DECEMBER 31, 1978

Name of Carrier	Total All Engines	Turbojet		Turboprop		Piston	
		2-engine	3-engine	4-engine	2-engine	2-engine	1-engine
Southeast Airlines, Inc.	1	---	---	---	1	---	---
Southern Flyer, Inc.	1	---	---	---	---	1	---
Stevens Beechcraft, Inc.	2	2	---	---	---	---	---
Summit Airlines, Inc.	4	---	---	---	3	1	---
Swift Aire Lines, Inc.	3	---	---	---	3	---	---
Thunderbird Airways, Inc.	4	4	---	---	---	---	---
Trans Florida Airlines, Inc.	2	---	---	---	---	2	---
Transwest Air Express	6	---	---	---	---	6	---
Vero Mommouth Airlines, Inc.	1	---	---	---	---	1	---
Viking Int. Airlines, Inc.	5	---	---	---	---	5	---
Windstar Aviation Corp.	1	1	---	---	---	---	---
Zantop Airways, Inc.	4	---	---	---	4	---	---

\*Aircraft operated by air taxi operators who hold authority to operate aircraft over 12,500 pounds, or turbojet aircraft exempted under blanket authority.

TABLE 5.19

AIRCRAFT IN OPERATION BY AIR TAXI OPERATORS\* BY MANUFACTURER AND MODEL  
DECEMBER 31, 1977 and 1978

Type of Aircraft, Number of Engines, and Model	1977	1978	Type of Aircraft, Number of Engines, and Model	1977	1978
Total aircraft	<u>261</u>	<u>339</u>	Piston--total	<u>154</u>	<u>185</u>
Fixed wing aircraft--total	<u>258</u>	<u>339</u>	4-engine--total	<u>2</u>	<u>5</u>
Turbojet--total	<u>74</u>	<u>95</u>	Douglas DC4	-	2
3-engine--total	-	<u>9</u>	Douglas DC6	2	2
Boeing B727	-	9	2-engine--total	<u>151</u>	<u>178</u>
2-engine--total	<u>74</u>	<u>86</u>	Convair CV240	-	2
Dassault MD20	45	45	Convair CV340/440	13	22
DeHavilland DH125	2	1	Curtiss-Wright CW46	5	5
Douglas DC9	-	1	DeHavilland DHC4	-	1
Grumman G1159	5	6	Douglas DC3	121	130
Hamburger/Flugzenbau HR320	3	6	Martin M404	12	16
Israel Aircraft WW23	-	1	1-engine--total	<u>1</u>	<u>2</u>
Learjet LR23	3	1	Beech BE18	1	1
Learjet LR25	11	13	Cessna C210	-	1
Learjet LR35	3	8	Rotary-wind--total	<u>3</u>	-
Rockwell Int'l NA265	2	4	Turbine--total	<u>3</u>	-
Turboprop--total	<u>30</u>	<u>59</u>	Sikorsky S61	3	-
4-engine--total	<u>1</u>	<u>14</u>			
Convair CV600	-	4			
Lockheed L188	1	6			
Short SD3	-	4			
2-engine--total	<u>29</u>	<u>45</u>			
Convair CV580	1	12			
DeHavilland DH7	-	1			
Grumman G159	6	7			
Israel Aircraft WW24	-	1			
Nord ND262	18	20			
Short SD330	4	4			

\*Aircraft operated by air taxi operators who hold authority to operate aircraft over 12,500 pounds or turbojet aircraft exempted under blanket authority.

TABLE 5.20

AIRCRAFT IN OPERATION BY AIR TRAVEL CLUBS:  
DECEMBER 31, 1978

Name of Carrier	Total Aircraft	Turbojet 4-Engine	Turboprop 4-Engine	Piston 2-Engine
Total	<u>19</u>	<u>7</u>	<u>3</u>	<u>9</u>
Ambassadair, Inc.	2	2	-	-
Atlanta Skylarks	1	1	-	-
Bird of the Sun Air Travel Club	1	-	-	1
Club Alaska Travel Club	1	1	-	-
Club U.S.A. International, Inc.	1	1	-	-
Emerald Shillelagh Chowder and Marching Society, Inc.	1	-	1	-
Great Valley Travel Club, Inc.	1	-	-	1
Jet Set Travel Club, Inc.	1	1	-	-
Nomads, Inc.	2	-	1	1
Pegasus Int'l Travel Club	2	1	-	1
Ports of Call Travel Club	6	-	1	5



## VI. U.S. CIVIL CARRIER OPERATING DATA

The air carrier data contained in this chapter were obtained from the following CAB sources:

Financial Data--Air Carrier Financial Statistics, published quarterly.  
Traffic Data--Air Carrier Traffic Statistics, published monthly.  
Supplemental Carrier Data--Air Carrier Analytic Charts and Supplemental Carrier Statistics, published quarterly.

Starting with the year 1970, data contained herein for domestic operations are compiled on a 50-states basis.

TABLE 6.1

## TRAFFIC DATA, SCHEDULED SERVICE OF CERTIFICATED ROUTE AIR CARRIERS: 1977 AND 1978

Traffic Category	Total Scheduled Service		Scheduled Domestic Service		Scheduled International/Territorial Service	
	1977	1978	1977	1978	1977	1978
Revenue passenger-miles Flown (000)*	193,218,819(r)	226,781,368	155,609,249(r)	182,669,424	36,609,570	44,111,944
First Class	27,995,576(r)	32,562,376	25,440,633(r)	29,665,369	2,554,943	2,897,007
Coach and Economy	165,223,244	194,218,991	131,168,617	153,004,055	34,054,627	41,214,936
Available seat miles (000)	345,565,901(r)	368,750,530	280,618,915(r)	299,541,652	64,946,986	69,208,878
Revenue passenger load factor (%)**	(55.9)	(61.5)	(55.8)	(61.0)	(56.4)	(63.7)
Revenue passenger enplanements (000)	240,326	274,719	222,283	253,960	18,043	20,759
Revenue ton-miles Flown (000)*	25,908,787(r)	29,679,437	19,537,804(r)	22,579,998	6,370,983	7,099,439
Passenger	19,321,853(r)	22,678,179	15,660,895(r)	18,266,957	3,660,958	4,411,222
Freight	5,385,129(r)	5,763,249	3,084,177(r)	3,449,764	2,300,952	2,313,485
Express	41,417	56,494	40,479	55,741	938	753
U.S. Mail	1,147,323(r)	1,167,683	750,672(r)	806,006	396,651	361,677
Foreign Mail	13,058	13,833	1,575	1,530	11,483	12,303
Revenue Aircraft-miles Flown (000)*	2,418,645(r)	2,519,976	2,103,789(r)	2,201,384	314,847	318,592
All passenger service	2,322,837(r)	2,421,859	2,048,523(r)	2,138,398	274,314	283,461
All cargo service	95,813	98,117	55,278	62,988	40,535	35,129

(R)=Revised.

\*Details may not add to total due to rounding.

\*\*Percent revenue passenger-miles flown of available seat-miles in revenue passenger service. This represents the proportion of aircraft seating capacity that is actually sold and utilized.

SOURCE: Bureau of Accounts and Statistics, CAB.

TABLE 6.2

TRAFFIC DATA, NONSCHEDULED SERVICE OF CERTIFICATED ROUTE AIR CARRIERS: 1977 AND 1978

Traffic Category	Total Nonscheduled Service (000)		Nonscheduled Domestic Service (000)		Nonscheduled International/Territorial Service (000)	
	1977(R)	1978	1977(R)	1978	1977(R)	1978
Revenue passenger-miles	12,862,707	10,216,166	6,609,469	5,143,162	6,253,238	5,073,004
Available seat miles	15,605,649	12,362,888	8,576,687	6,658,889	7,028,962	5,703,999
Revenue ton-miles flown*	1,673,587	1,415,576	730,657	571,825	942,930	843,751
Passenger	1,286,275	1,021,623	660,951	514,324	625,325	507,299
Freight	387,310	393,951	69,705	57,501	317,605	336,450
Available ton-miles	2,504,761	2,104,441	1,193,925	924,501	1,310,836	1,179,940
Revenue aircraft miles flown	106,383	88,152	58,142	47,484	48,241	40,668
Revenue passenger enplanements	5,446	4,582	3,637	3,061	1,809	1,521

(R)=Revised.

\*Details may not add to total due to rounding.

SOURCE: Bureau of Accounts and Statistics, CAB.

TABLE 6.3

REVENUE AIRCRAFT DEPARTURES, MILES AND HOURS FLOWN, AND AVERAGE SPEED IN SCHEDULED DOMESTIC SERVICE OF THE PASSENGER/CARGO CERTIFICATED ROUTE AIR CARRIERS: 1969 THROUGH 1978

Year	Revenue Aircraft Departures	Revenue Aircraft Miles Flown (000)	Revenue Aircraft Hours Flown	Average Airborne Speed (Miles per Hour)
1969 . . . . .	5,058,371	2,000,269	5,082,555	390
1970 . . . . .	4,776,584	2,013,484	5,746,058	350
1971 . . . . .	4,680,612	1,992,807	4,925,995	405
1972 . . . . .	4,726,047	1,986,758	4,917,997	404
1973 . . . . .	4,805,141	2,040,407	5,051,158	404
1974 . . . . .	4,433,705	1,883,265	4,693,521	401
1975 . . . . .	4,456,146	1,909,486	4,735,970	403
1976 . . . . .	4,598,152	2,001,387	4,929,240	406
1977 . . . . .	4,697,164(r)	2,087,653(r)	5,117,575()	408
1978 . . . . .	4,772,426	2,176,205	5,324,537	409

(r)1978 revised.

Source: Bureau of Accounts and Statistics, CAB.



TABLE 6.4

REVENUE AIRCRAFT DEPARTURES, MILES AND HOURS FLOWN, AND AVERAGE SPEED IN  
SCHEDULED INTERNATIONAL/TERRITORIAL SERVICE OF THE PASSENGER/CARGO  
CERTIFICATED ROUTE AIR CARRIERS: 1969 THROUGH 1978

Year	Revenue Aircraft Departures	Revenue Aircraft Miles Flown (000)	Revenue Aircraft Hours Flown	Average Airborne Speed (Miles per Hour)
1969 . . . . .	295,489	359,476	753,347	477
1970 . . . . .	299,529	369,870	767,440	482
1971 . . . . .	292,515	350,744	728,331	482
1972 . . . . .	292,995	350,112	729,613	480
1973 . . . . .	297,153	361,481	751,773	481
1974 . . . . .	260,932	330,248	686,704	481
1975 . . . . .	248,564	331,020	686,450	482
1976 . . . . .	234,512	318,610	658,536	484
1977 . . . . .	223,635(r)	314,847	646,005	487
1978 . . . . .	217,873	318,592	651,405	489

(r)Revised.

Source: Bureau of Accounts and Statistics, CAB.

TABLE 6.5  
TOTAL TON-MILES AVAILABLE IN ALL SERVICES OF THE  
UNITED STATES AIR CARRIERS: 1969 THROUGH 1978  
(Thousands of Ton-Miles)

Year	Total Available Ton-Miles	Certificated Route Air Carriers			Supplemental Air Carriers
		Total	Domestic Operations	International and Territorial Operations	
1969 . . . . .	45,246,411	42,770,192	32,020,042	10,750,150	2,476,219
1970 . . . . .	46,273,427	44,298,170	32,580,842	11,717,328	1,975,257
1971 . . . . .	49,584,516	47,255,550	33,994,418	13,261,132	2,328,966
1972 . . . . .	50,867,516	48,680,473	34,877,554	13,802,919	2,187,043
1973 . . . . .	53,966,736	51,443,758	37,371,558	14,072,200	2,522,978
1974 . . . . .	51,153,441	48,941,526	35,565,908	13,375,618	2,211,915
1975 . . . . .	51,215,945	49,288,695	36,511,214	12,777,481	1,927,250
1976 . . . . .	53,521,569	51,708,842	38,819,097	12,889,745	1,812,727
1977 . . . . .	56,775,493(r)	54,789,077(r)	41,412,289(r)	13,376,788(r)	1,986,416
1978 . . . . .	58,903,243	56,869,934	43,556,663	13,312,271	2,034,309

(r)Revised.

Source: Bureau of Accounts and Statistics, CAB.

TABLE 6.6

REVENUE TON-MILES FLOWN IN ALL SERVICES BY CERTIFICATED ROUTE  
AIR CARRIERS OF THE UNITED STATES: 1969 THROUGH 1978  
(Thousands of Tons)

Year	Certificated Route Air Carriers		
	Total*	Domestic Operations	International and Territorial Operations
1969 . . . . .	19,989,409	13,942,994	6,046,417
1970 . . . . .	20,185,500	13,876,803	6,308,694
1971 . . . . .	20,905,968	14,141,786	6,764,182
1972 . . . . .	22,805,371	15,584,558	7,220,813
1973 . . . . .	23,927,657	16,707,015	7,220,642
1974 . . . . .	23,900,208	16,999,202	6,901,006
1975 . . . . .	23,533,743	17,069,474	6,464,269
1976 . . . . .	25,709,152	18,801,891	6,907,261
1977 . . . . .	27,582,374(r)	20,268,464(r)	7,313,910(r)
1978 . . . . .	31,095,008	23,131,819	7,943,189

\*Categories may not add to total due to rounding.

(r)Revised.

Source: Bureau of Accounts and Statistics, CAB.

TABLE 6.7

TOTAL TON-MILES AVAILABLE IN SCHEDULED SERVICE OF THE CERTIFICATED  
ROUTE AIR CARRIERS: 1969 THROUGH 1978  
(Thousands of Ton-Miles)

Year	Total Available Ton-Miles	Domestic Operations			International/Territorial Operations		
		Total	Passenger or Cargo Operations	All Cargo Carriers	Total	Passenger or Cargo Operations	All Cargo Carriers
1969	38,663,697	30,544,280	30,125,957	418,323	8,119,417	7,534,997	584,420
1970	41,692,872	31,832,719	31,340,228	492,491	9,860,153	8,952,755	907,398
1971	44,138,742	33,210,930	32,688,215	522,715	10,927,812	9,934,594	993,218
1972	45,583,056	34,037,816	33,447,467	590,349	11,545,240	10,417,800	1,127,440
1973	49,019,300	36,622,737	35,796,002	826,735	12,396,563	11,148,088	1,248,475
1974	46,848,194	34,852,546	34,030,377	822,169	11,995,648	10,713,196	1,282,452
1975	47,254,436	35,694,516	34,978,118	716,398	11,559,920	10,149,968	1,409,952
1976	49,324,836	37,762,270	37,024,605	737,665	11,562,566	10,128,805	1,433,761
1977	52,284,321(r)	40,218,368(r)	39,435,896(r)	782,472	12,065,953	10,672,803	1,393,150
1978	54,764,491	42,632,163	41,327,693	1,304,470	12,132,328	10,831,812	1,300,516

(r)Revised.

Source: Bureau of Accounts and Statistics, CAB.

TABLE 6.8

REVENUE TON-MILES FLOWN IN SCHEDULED SERVICE OF THE CERTIFICATED ROUTE AIR CARRIERS: 1969 THROUGH 1978  
(Thousands of Ton-Miles)

Year	Total Revenue Ton-Miles Scheduled	Domestic Operations			International/Territorial Operations		
		Total	Passenger/ Cargo Operations	All Cargo Carriers	Total	Passenger/ Cargo Operations	All Cargo Carriers
1969	16,898,218	12,830,573	12,615,450	215,123	4,067,645	3,699,324	368,321
1970	18,165,661	13,345,048	13,086,322	258,726	4,820,613	4,247,362	573,251
1971	18,685,307	13,628,704	13,353,000	275,704	5,056,603	4,388,559	668,044
1972	20,746,190	15,065,840	14,729,594	336,246	5,680,350	4,912,784	767,566
1973	22,241,875	16,239,873	15,743,457	496,416	6,002,002	5,164,020	837,928
1974	22,425,208	16,553,354	16,062,715	490,639	5,871,854	5,005,447	866,407
1975	22,185,546	16,602,980	16,169,542	433,438	5,582,566	4,679,319	903,247
1976	24,120,934	18,154,965	17,709,697	445,268	5,965,969	5,043,985	921,984
1977	25,908,787(r)	19,537,804(r)	19,041,963(r)	495,841	6,370,983	5,427,710	943,273
1978	29,679,437	22,579,998	21,736,679	843,319	7,099,439	6,181,751	917,688

(r)Revised.

Source: Bureau of Accounts and Statistics, CAB.



TABLE 6.9  
REVENUE TON-MILES FLOWN IN SCHEDULED DOMESTIC PASSENGER/CARGO SERVICE OF  
THE CERTIFICATED ROUTE AIR CARRIERS: 1969 THROUGH 1978  
(Thousands of Ton-Miles)

Year	Total		Passenger	Mail	Express and Freight
	Number*	Load Factor**			
1969 . . . . .	12,615,450	41.9	9,897,465	800,814	1,916,472
1970 . . . . .	13,086,332	41.8	10,414,764	705,666	1,965,904
1971 . . . . .	13,353,000	40.8	10,643,399	696,780	2,012,818
1972 . . . . .	14,729,594	44.0	11,813,493	676,062	2,240,039
1973 . . . . .	15,743,457	44.0	12,631,705	658,237	2,453,517
1974 . . . . .	16,062,715	47.2	12,973,216	667,577	2,421,926
1975 . . . . .	16,169,542	46.2	13,172,873	665,493	2,331,176
1976 . . . . .	17,709,697	47.8	14,527,134	707,657	2,474,902
1977 . . . . .	19,041,963(r)	48.3	15,660,895(r)	740,021(r)	2,641,041(r)
1978 . . . . .	21,736,679	52.6	18,266,957	779,053	2,690,668

\*Categories may not add to total due to rounding.

\*\*Percent total revenue ton-miles flown of available ton-miles in revenue services.

(r) revised.

Source: Bureau of Accounts and Statistics, CAB.

TABLE 6.10

REVENUE TON-MILES FLOWN IN SCHEDULED INTERNATIONAL/TERRITORIAL SERVICE OF  
THE PASSENGER/CARGO CERTIFICATED ROUTE AIR CARRIERS: 1969 THROUGH 1978  
(Thousands of Ton-Miles)

Year	Total		Passenger	Mail	Express and Freight
	Number*	Load Factor**			
1969 . . . . .	3,699,324	49.1	2,299,767	463,009	936,554
1970 . . . . .	4,247,363	47.4	2,756,510	548,845	942,008
1971 . . . . .	4,388,559	44.2	2,922,094	456,683	1,009,785
1972 . . . . .	4,912,784	47.2	3,427,026	371,656	1,114,104
1973 . . . . .	5,164,020	46.3	3,563,995	361,440	1,238,584
1974 . . . . .	5,005,447	46.7	3,318,630	347,762	1,339,056
1975 . . . . .	4,679,319	46.1	3,108,173	311,707	1,259,439
1976 . . . . .	5,043,985	49.8	3,371,676	291,682	1,380,132
1977 . . . . .	5,427,710	50.9	3,660,958	298,970(r)	1,467,782(r)
1978 . . . . .	6,181,751	57.1	4,410,442	282,425	1,488,886

\*Categories may not add to total due to rounding.

\*\*Percent total revenue ton-miles flown of available ton-miles in revenue services.

(r)revised.

Source: Bureau of Accounts and Statistics, CAB.

TABLE 6.11  
REVENUE TON-MILES FLOWN IN SCHEDULED DOMESTIC SERVICE OF THE ALL-CARGO  
CERTIFICATED ROUTE AIR CARRIERS: 1969 THROUGH 1978  
(Thousands of Ton-Miles)

Year	Total		Freight	Express	Mail
	Number*	Load Factor**			
1969 . . . . .	215,123	51.4	208,058	1,530	5,535
1970 . . . . .	258,726	52.5	247,877	1,713	9,136
1971 . . . . .	275,704	52.7	263,075	1,838	10,792
1972 . . . . .	336,246	57.0	324,666	2,056	9,526
1973 . . . . .	496,416	60.0	466,053	2,023	28,340
1974 . . . . .	490,639	59.7	464,584	1,650	24,405
1975 . . . . .	433,438	60.5	414,700	958	17,780
1976 . . . . .	445,268	60.4	434,307	66	10,895
1977 . . . . .	495,841	63.4	483,554	61	12,226
1978 . . . . .	843,319	64.6	813,561	1,276	28,483

\*Details may not add to total due to rounding.

\*\*Percent total revenue ton-miles flown of available ton-miles in revenue services.

Source: Bureau of Accounts and Statistics, CAB.



TABLE 6.12

REVENUE TON-MILES FLOWN IN SCHEDULED INTERNATIONAL/TERRITORIAL SERVICE OF THE ALL-CARGO  
CERTIFICATED ROUTE AIR CARRIERS: 1969 THROUGH 1978  
(Thousands of Ton-Miles)

Year	Total		Freight	Express	Mail
	Number*	Load Factor**			
1969 . . . . .	368,320	63.0	287,810	8	80,502
1970 . . . . .	573,251	63.2	356,502	62	216,687
1971 . . . . .	668,044	67.3	507,716	51	160,278
1972 . . . . .	767,566	68.1	623,981	28	143,557
1973 . . . . .	837,982	67.1	676,959	90	160,933
1974 . . . . .	866,407	67.6	743,420	235	122,754
1975 . . . . .	903,247	64.1	788,966	70	114,211
1976 . . . . .	921,984	64.3	806,296	---	115,688
1977 . . . . .	943,273	67.7	834,108	---	109,164
1978 . . . . .	917,688	70.6	825,352	---	91,555

\*Categories may not add to total due to rounding.

\*\*Percent total revenue ton-miles flown of available ton-miles in revenue services.

Source: Bureau of Accounts and Statistics, CAB.

TABLE 6.13

DOMESTIC FREIGHT REVENUE TON-MILES FLOWN, BY TYPE OF CARRIER: 1968 THROUGH 1977  
(Thousands of Ton-Miles)

Year	Total All Carriers*	Passenger/Cargo Carriers			All-Cargo Carriers		Non-scheduled	Supplemental Carriers
		Total*	Scheduled	Non-scheduled	Total*	Scheduled		
1969	2,519,811	2,097,201	1,916,472	180,729	394,112	209,588	184,524	256,202
1970	2,580,757	2,003,193	1,965,904	37,289	292,145	249,590	42,555	285,419
1971	2,747,227	2,141,650	2,012,818	128,832	299,972	264,913	35,059	305,605
1972	2,972,708	2,344,840	2,240,039	104,800	369,022	326,722	42,300	258,846
1973	3,267,003	2,470,232	2,453,517	16,717	505,187	468,076	37,111	291,584
1974	3,221,250	2,431,660	2,421,926	9,733	508,415	466,234	42,182	279,986
1975	3,020,247	2,312,235	2,303,388	8,847	445,251	414,700	30,551	262,761
1976	3,161,302	2,471,508	2,453,458	18,050	452,306	434,307	17,999	237,488
1977	3,389,599	2,646,878(r)	2,600,623(r)	46,254(r)	507,005	483,554	23,451	235,497
1978	3,768,897	2,666,723	2,636,203	30,520	840,542	813,561	26,981	261,632

(r)Revised.

\*Categories may not add to totals due to rounding.

Source: Bureau of Accounts and Statistics, CAB.

TABLE 6.14

U.S. MAIL AND AIR CARGO REVENUE TON-MILES FLOWN IN SCHEDULED DOMESTIC  
SERVICE OF THE PASSENGER/CARGO CERTIFICATED ROUTE AIR CARRIERS:  
1969 THROUGH 1978  
(Thousands of Ton-Miles)

Year	U.S. Mail	Air Cargo		
	Total	Total	Freight	Express
1969 . . . . .	800,814	1,916,472	1,808,987	107,485
1970 . . . . .	705,241	1,965,904	1,861,610	104,294
1971 . . . . .	696,331	2,012,818	1,932,243	80,575
1972 . . . . .	675,524	2,240,039	2,155,432	84,607
1973 . . . . .	657,429	2,453,517	2,355,856	97,661
1974 . . . . .	666,663	2,421,926	2,343,823	78,103
1975 . . . . .	664,374	2,331,176	2,303,388	27,788
1976 . . . . .	706,479	2,474,884	2,453,440	21,444
1977 . . . . .	738,446(r)	2,641,041(r)	2,600,623	40,418
1978 . . . . .	777,523	2,690,668	2,636,203	54,465

(r)revised.

Source: Bureau of Accounts and Statistics, CAB.

TABLE 6.15

U.S. AND FOREIGN MAIL AND AIR CARGO REVENUE TON-MILES FLOWN IN SCHEDULED  
INTERNATIONAL/TERRITORIAL SERVICE OF THE PASSENGER/CARGO  
CERTIFICATED ROUTE AIR CARRIERS: 1969 THROUGH 1978  
(Thousands of Ton-Miles)

Year	Mail	Air Cargo		
	Total	Total	Freight	Express
1969 . . . . .	463,099	936,554	936,110	444
1970 . . . . .	548,845	942,008	941,563	445
1971 . . . . .	456,683	1,009,785	1,099,254	531
1972 . . . . .	371,656	1,114,104	1,113,373	731
1973 . . . . .	361,440	1,238,584	1,237,861	723
1974 . . . . .	347,762	1,339,056	1,338,199	857
1975 . . . . .	311,707	1,259,439	1,259,065	374
1976 . . . . .	291,682	1,380,625	1,380,132	493
1977 . . . . .	298,970	1,467,782	1,466,844	938
1978 . . . . .	282,425	1,488,886	1,488,133	753

Source: Bureau of Accounts and Statistics, CAB.

TABLE 6.16

REVENUE PASSENGER ENPLANEMENTS IN SCHEDULED SERVICE OF THE CERTIFICATED  
ROUTE AIR CARRIERS: 1974 THROUGH 1978  
(Thousands of Enplanements)

Type of Carrier	1974	1975	1976	1977	1978
Total	207,458	205,062	223,318	240,326	274,719
Domestic passenger/cargo	189,733	188,746	206,274	222,283	253,960
Trunk lines	147,999	147,428	160,451	172,231	196,073
Local service	35,200	34,027	37,947	41,853	48,612
Regional	N/A	409	415	543	622
Helicopter	592	505	444	268	282
Intra-Alaska	1,100	1,442	1,562	1,452	1,574
Intra-Hawaii	4,675	4,767	5,262	5,724	6,488
Other	157	168	198	212	309
International and territorial passenger/cargo	17,725	16,316	17,039	18,043	20,759

N/A - Not available.

Source: Bureau of Accounts and Statistics, CAB.

TABLE 6.17

PASSENGER OPERATIONS IN SCHEDULED DOMESTIC SERVICE OF  
CERTIFICATED ROUTE AIR CARRIERS: 1969 THROUGH 1978

Year	Revenue Passenger Enplanements (000)	Revenue Passenger Miles (000)	Available Seat-Miles (000)	Revenue Passenger Load Factor*	Average On-Line Passenger Trip-Length (Miles)	Average Passenger Revenue Per Passenger-Miles (Cents)
1969	142,340	102,717,425	206,434,270	49.8	722	5.90
1970	153,662	104,155,983	212,943,866	48.9	678	6.00
1971	156,195	106,438,408	221,503,165	48.1	681	6.33
1972	172,452	118,137,978	226,614,145	52.1	685	6.40
1973	183,272	126,317,334	244,699,119	51.6	689	6.63
1974	189,733	129,732,395	233,880,101	55.5	684	7.52
1975	188,746	131,728,492	241,282,125	54.6	698	7.69
1976	206,279	143,271,283	261,247,796	54.8	704	8.16
1977	222,283	156,609,249(r)	280,618,915(r)	55.8	704	8.61
1978	253,960	182,669,424	299,541,652	61.0	719	8.49

(r)Revised

\*Percent revenue passenger-miles of available seat-miles.

Source: Bureau of Accounts and Statistics, CAB.



TABLE 6.18

PASSENGER OPERATIONS IN SCHEDULED INTERNATIONAL AND TERRITORIAL SERVICE OF  
THE CERTIFICATED ROUTE AIR CARRIERS: 1969 THROUGH 1978

Year	Revenue Passenger Enplanements (000)	Revenue Passenger Miles (000)	Available Seat-Miles (000)	Revenue Passenger Load Factor (Percent)*	Average On-Line Passenger Trip-Length (Miles)	Average Passenger Revenue Per Passenger-Miles (Cents)
1969 . .	18,603	22,702,695	44,411,659	51.1	1,220	4.95
1970 . .	16,260	27,563,211	51,959,992	53.0	1,695	5.01
1971 . .	17,474	29,219,294	58,320,186	50.1	1,672	5.08
1972 . .	18,897	34,268,298	60,797,069	56.4	1,813	4.98
1973 . .	18,936	35,639,973	65,897,988	54.1	1,882	5.32
1974 . .	17,725	33,186,199	63,125,961	52.6	1,872	4.39
1975 . .	16,316	31,081,668	61,724,118	50.4	1,905	7.17
1976 . .	17,039	33,716,743	61,573,853	54.8	1,979	7.15
1977 . .	18,043	36,609,570	64,946,986	56.4	2,029	7.61
1978 . .	20,759	44,111,944	69,208,878	63.7	2,125	7.49

\*Percent revenue passenger-miles of available seat-miles.

Source: Bureau of Accounts and Statistics, CAB.

TABLE 6.19

COACH PLUS ECONOMY PASSENGER OPERATIONS IN SCHEDULED DOMESTIC SERVICE  
OF THE PASSENGER/CARGO CERTIFICATED ROUTE AIR CARRIERS: 1969 THROUGH 1978

Year	Revenue Passenger Miles (000)	Available Seat-Miles (000)	Revenue Passenger Load Factor (Percent)*	Coach Plus Economy Passenger-Miles as Percent of Total
1969 . . . . .	81,732,619	155,247,875	52.6	79.6
1970 . . . . .	84,349,480	160,354,405	52.6	81.0
1971 . . . . .	87,068,135	166,419,971	52.3	81.8
1972 . . . . .	96,181,995	171,712,976	56.0	81.4
1973 . . . . .	102,753,267	186,879,821	55.0	81.3
1974 . . . . .	104,245,352	177,011,547	58.9	80.4
1975 . . . . .	108,106,295	184,483,964	58.6	82.1
1976 . . . . .	120,871,281	203,749,632	59.3	83.2
1977 . . . . .	131,168,617	221,658,610	59.2	83.8
1978 . . . . .	153,004,055	239,788,601	63.8	83.8

\*Percent revenue passenger-miles of available seat-miles.

Source: Bureau of Accounts and Statistics, CAB.

TABLE 6.20

COACH PLUS ECONOMY PASSENGER OPERATIONS IN SCHEDULED INTERNATIONAL/TERRITORIAL  
SERVICE OF THE PASSENGER/CARGO CERTIFICATED ROUTE AIR CARRIERS: 1969 THROUGH 1978

Year	Revenue Passenger Miles (000)	Available Seat-Miles (000)	Revenue Passenger Load Factor (Percent)*	Coach Plus Economy Passenger-Miles as Percent of Total
1969 . . . . .	20,202,474	37,897,380	53.3	89.0
1970 . . . . .	24,777,086	44,232,302	56.0	89.9
1971 . . . . .	26,582,499	50,225,661	52.9	91.0
1972 . . . . .	31,383,908	53,359,631	58.8	91.6
1973 . . . . .	32,758,604	58,223,313	56.3	91.9
1974 . . . . .	30,495,916	56,100,020	54.4	91.9
1975 . . . . .	28,756,207	55,034,477	52.3	92.5
1976 . . . . .	31,321,359	55,296,351	56.6	92.9
1977 . . . . .	34,054,627	58,560,002	58.2	93.0
1978 . . . . .	41,214,936	62,591,778	65.8	93.5

\*Percent revenue passenger-miles of available seat-miles.

Source: Bureau of Accounts and Statistics, CAB.

TABLE 6.21

REVENUE AIRCRAFT MILES FLOWN IN ALL SERVICES OF THE CERTIFICATED  
ROUTE AIR CARRIERS: 1969 THROUGH 1978  
(Thousands of Aircraft Miles)

Year	Scheduled Service			Non- Scheduled Service
	Total*	Passenger/ Cargo	All Cargo**	
1969 . . . . .	2,384,888	2,243,517	141,350	169,858
1970 . . . . .	2,418,169	2,265,955	152,214	124,095
1971 . . . . .	2,377,858	2,237,176	140,682	131,589
1972 . . . . .	2,375,878	2,236,065	139,813	124,000
1973 . . . . .	2,448,113	2,302,755	145,358	107,609
1974 . . . . .	2,258,188	2,126,417	131,768	92,680
1975 . . . . .	2,240,506	2,123,705	116,799	84,187
1976 . . . . .	2,319,967	2,215,054	104,913	99,192
1977 . . . . .	2,418,645(r)	2,322,837(r)	95,813(r)	106,383(r)
1978 . . . . .	2,519,976	2,421,859	98,117	88,152

\*Details may not add to total due to rounding.

\*\*Includes operations of the all-cargo carriers and all-cargo operations of the  
passenger/cargo carriers.

(r)Revised

Source: Bureau of Accounts and Statistics, CAB.

TABLE 6.22

REVENUE AIRCRAFT MILES FLOWN IN DOMESTIC OPERATIONS OF THE CERTIFICATED  
ROUTE AIR CARRIERS: 1969 THROUGH 1978 (Thousands of Aircraft Miles)

Year	Scheduled Service			Non- Scheduled Service
	Total*	Passenger/ Cargo	All Cargo**	
1969 . . . . .	1,963,367	1,879,389	83,978	69,510
1970 . . . . .	2,019,417	1,930,611	88,806	40,059
1971 . . . . .	2,003,878	1,920,317	83,562	40,733
1972 . . . . .	1,999,530	1,917,471	82,059	42,224
1973 . . . . .	2,057,745	1,975,754	81,990	40,138
1974 . . . . .	1,900,584	1,831,034	69,549	37,457
1975 . . . . .	1,909,486	1,849,142	60,343	38,174
1976 . . . . .	2,001,357	1,947,397	53,960	50,125
1977 . . . . .	2,103,798(r)	2,048,523(r)	55,278(r)	58,142(r)
1978 . . . . .	2,201,384	2,138,398	62,988	47,484

\*Details may not add to total due to rounding.

\*\*Includes operations of the all-cargo carriers and all-cargo operations of the  
passenger/cargo carriers.

(r)Revised

Source: Bureau of Accounts and Statistics, CAB.

TABLE 6.23

REVENUE AIRCRAFT MILES FLOWN IN INTERNATIONAL/TERRITORIAL OPERATIONS BY CERTIFICATED  
ROUTE AIR CARRIERS: 1969 THROUGH 1978 (Thousands of Aircraft Miles)

Year	Scheduled Service			Non- Scheduled Service
	Total*	Passenger/ Cargo	All Cargo**	
1969 . . . . .	421,500(r)	364,128	57,372	100,348
1970 . . . . .	398,752(r)	335,344	63,408	84,036
1971 . . . . .	373,980	316,859	57,120	90,856
1972 . . . . .	376,346	318,594	57,754	81,776
1973 . . . . .	390,369	327,001	63,368	67,471
1974 . . . . .	357,604	295,383	62,219	55,223
1975 . . . . .	331,020	274,563	56,456	46,013
1976 . . . . .	318,610	267,657	50,953	49,067
1977 . . . . .	314,847	274,314(r)	40,535(r)	48,241(r)
1978 . . . . .	318,592	283,461	35,129	40,668

\*Details may not add to total due to rounding.

\*\*Includes operations of the all-cargo carriers and all-cargo operations of the  
passenger/cargo carriers.

(r)Revised

Source: Bureau of Accounts and Statistics, CAB.



TABLE 6.24

REVENUE AIRCRAFT MILES FLOWN IN SCHEDULED DOMESTIC SERVICE OF THE CERTIFICATED  
ROUTE AIR CARRIERS BY TYPE OF CARRIER: 1969 THROUGH 1978  
(Thousands of Aircraft Miles)

Year	Trunk	Local Service	Regional	Helicopter	Intra-Alaska	Intra-Hawaii	All-Cargo	Other
1969 . . . . .	1,747,185	227,603	N/A	1,910	7,438	8,697	10,456	7,436
1970 . . . . .	1,748,728	242,471	N/A	1,427	7,603	8,147	11,219	7,944
1971 . . . . .	1,727,414	241,911	N/A	1,048	7,823	7,276	11,071	7,335
1972 . . . . .	1,711,465	249,561	N/A	1,022	15,980	8,115	12,771	615
1973 . . . . .	1,743,427	270,677	N/A	1,085	15,487	8,965	17,338	766
1974 . . . . .	1,589,077	264,522	N/A	1,029	18,712	9,192	17,319	733
1975 . . . . .	1,599,008	257,800	5,007	873	22,678	9,154	14,128	838
1976 . . . . .	1,673,216	275,656	4,437	709	22,953	9,364	14,089	963
1977 . . . . .	1,755,550	292,743(r)	6,323	468	21,909(r)	9,624	16,145	1,036
1978 . . . . .	1,812,660	321,311	6,884	403	23,487	9,962	25,179	1,498

(r) Revised.

Source: Bureau of Accounts and Statistics, CAB.

TABLE 6.25

U.S. SUPPLEMENTAL AIR CARRIER OPERATIONS: 1976 THROUGH 1978

Item	1976	1977	1978
Revenue aircraft miles (000)	62,774	67,698(r)	69,732
Commercial	38,306	45,690(r)	46,231
Military	24,468	22,008(r)	23,501
Revenue passenger originations (000)	2,192	2,794	2,951
Revenue passenger miles (000)	8,199,053	9,983,404	9,999,037
Commercial	6,647,466	8,352,086	8,297,453
Military	1,551,587	1,631,318	1,701,584
Available seat-miles (000)	9,264,160	11,537,720	11,324,351
Revenue cargo ton-miles (000)	384,133	329,919(r)	372,447
Commercial	159,242	136,226(r)	163,313
Military	224,891	193,693(r)	209,134
Available ton-miles	1,812,727	1,986,416	2,034,309
Operating revenue (\$000)	417,480	516,158	529,802
Transport	398,656	474,640	506,407
Contract and charter			
Commercial	291,181	359,896	380,067
Military	107,237	114,140	123,437
Other	239	604	2,151
Other than transport	18,827	41,515	23,391
Operating expenses (\$000)	418,086	500,783	510,070
Operating profit or loss (\$000)	-599	15,370	19,737
Number of operators	7	10	9

(r)Revised.

Source: Bureau of Accounts and Statistics, CAB.

TABLE 6.26  
OPERATING REVENUE OF SCHEDULED DOMESTIC PASSENGER/CARGO OPERATORS,  
CERTIFICATED ROUTE AIR CARRIERS: 1969 THROUGH 1978  
(Thousands of Dollars)

Year	Total Operating Revenues*		Passenger		U.S. Mail (Including Subsidy)		Express and Freight		Excess Baggage		Other	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1969 . . . . .	6,856,964	100.0	5,943,446	86.7	221,773	3.2	432,292	6.3	11,699	0.2	247,754	3.6
1970 . . . . .	7,130,716	100.0	6,246,426	87.6	204,639	2.9	460,714	6.5	12,134	0.1	206,801	2.9
1971 . . . . .	7,701,402	100.0	6,736,350	87.5	224,283	2.9	485,182	6.3	13,562	0.2	242,027	3.1
1972 . . . . .	8,587,996	100.0	7,564,841	88.1	228,031	2.7	541,346	6.3	12,842	0.1	240,936	2.8
1973 . . . . .	9,604,652	100.0	8,379,396	87.3	257,745	2.7	615,099	6.4	14,289	0.1	338,124	3.5
1974 . . . . .	11,448,289	100.0	9,757,503	85.2	259,419	2.3	672,957	5.9	16,581	0.1	741,829	6.5
1975 . . . . .	11,910,894	100.0	10,113,091	84.9	185,336	1.6	696,135	5.8	18,863	0.2	897,469	7.5
1976 . . . . .	13,789,178	100.0	11,855,266	86.0	214,125	1.6	830,051	6.0	22,014(r)	0.2	867,722(r)	6.3
1977 . . . . .	15,690,236(r)	100.0	13,489,111(r)	86.0	277,518(r)	1.7	960,857(r)	6.1	20,913(r)	0.1	941,837	6.1
1978 . . . . .	17,937,861	100.0	15,506,693	86.5	263,134	1.5	1,092,341	6.1	22,893	0.1	1,052,800	6.0

(r) Revised.

\*Details may not add to total due to rounding.

Source: Bureau of Accounts and Statistics, CAB.



TABLE 6.27  
OPERATING EXPENSES OF SCHEDULED DOMESTIC PASSENGER/CARGO OPERATORS,  
CERTIFICATED ROUTE AIR CARRIERS: 1969 THROUGH 1978  
(Thousands of Dollars)

Year	Total Operating Expenses*		Aircraft Operating Expenses						Ground and Indirect Expense		Net Operating Income or Loss
			Flight Operations		Maintenance Flight Equipment		Depreciation and Amortization Flight Equipment and Other				
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount
1969	6,553,214	100.0	1,917,591	29.4	1,041,497	15.9	688,091	10.5	2,886,035	44.2	323,749
1970	7,127,747	100.0	2,098,250	29.4	1,127,161	15.8	745,279	10.5	3,157,056	44.3	2,970
1971	7,443,222	100.0	2,235,004	30.0	1,124,526	15.2	749,077	10.1	3,334,614	44.7	258,181
1972	8,096,695	100.0	2,324,560	28.7	1,239,456	15.3	773,823	9.6	3,758,854	46.4	491,300
1973	9,116,173	100.0	2,605,723	28.6	1,397,007	15.3	834,607	9.2	4,278,836	46.9	488,479
1974	10,648,991	100.0	3,297,164	31.0	1,499,920	14.1	865,229	8.1	4,986,680	46.8	799,289
1975	11,781,406	100.0	3,869,405	32.8	1,595,358	13.6	882,569	7.5	5,434,073	46.1	129,488
1976	13,231,448	100.0	4,401,280	33.3	1,802,164	13.6	920,144	7.0	6,089,859	46.1	575,730
1977	15,036,431(r)	100.0	5,229,115(r)	34.8	1,986,460(r)	13.2	959,707(r)	6.4	6,861,149(r)	45.6	653,805(r)
1978	16,932,475	100.0	5,574,351	32.9	2,125,038	12.6	1,212,284	7.1	8,020,802	47.4	1,005,386

(r)Revised.

\*Details may not add to total due to rounding.

Source: Bureau of Accounts and Statistics, CAB.

AD-A080 594

FEDERAL AVIATION ADMINISTRATION WASHINGTON DC OFFICE --ETC F/G 1/2  
FAA STATISTICAL HANDBOOK OF AVIATION, CALENDAR YEAR 1978.(U)  
DEC 78 P BEARDSLEY

UNCLASSIFIED

2 OF 2

AD  
A080594

NL

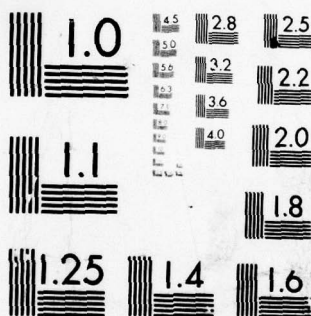
END

DATE

FILMED

8-80

DDC



MICROCOPY RESOLUTION TEST CHART  
NATIONAL BUREAU OF STANDARDS-1963-A



TABLE 6. 28  
OPERATING REVENUE OF SCHEDULED INTERNATIONAL/TERRITORIAL PASSENGER/CARGO OPERATORS,  
CERTIFICATED ROUTE AIR CARRIERS: 1969 THROUGH 1978  
(Thousands of Dollars)

Year	Total Operating Revenues*		Passenger		U.S. Mail (Including Subsidy)		Express and Freight		Excess Baggage		Other	
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent
1969 . . . . .	1,689,397	100.0	1,176,349	69.6	91,769	5.4	185,502	11.0	14,232	0.9	221,536	13.1
1970 . . . . .	1,913,592	100.0	1,380,388	72.1	103,303	5.4	197,031	10.3	15,109	0.8	217,760	11.4
1971 . . . . .	2,080,262	100.0	1,483,973	71.4	90,188	4.3	220,553	10.6	15,672	0.8	269,874	12.9
1972 . . . . .	2,284,300	100.0	1,706,512	74.7	77,378	3.4	242,354	10.6	14,459	0.6	243,599	10.7
1973 . . . . .	2,526,878	100.0	1,894,914	75.0	71,366	2.8	268,055	10.6	15,231	0.6	277,314	11.0
1974 . . . . .	2,921,607	100.0	2,121,651	72.6	83,595	2.9	335,704	11.5	20,965	0.7	359,693	12.3
1975 . . . . .	3,063,399	100.0	2,230,081	72.9	89,793	2.9	355,805	11.6	25,476	0.8	362,245	11.8
1976 . . . . .	3,316,136	100.0	2,410,987	72.9	77,620	2.3	382,053	11.5	27,259	0.8	418,217	12.6
1977 . . . . .	3,774,262	100.0	2,785,706	73.8	79,582	2.1	425,296	11.3	20,797	0.6	462,882	12.3
1978 . . . . .	4,332,323	100.0	3,305,529	76.3	82,439	1.9	443,894	10.3	20,019	0.5	480,442	11.1

\*Details may not add to total due to rounding.

Source: Bureau of Accounts and Statistics, CAB.

TABLE 6.29  
OPERATING EXPENSES OF SCHEDULED INTERNATIONAL/TERRITORIAL PASSENGER/CARGO OPERATORS,  
CERTIFICATED ROUTE AIR CARRIERS: 1969 THROUGH 1978  
(Thousands of Dollars)

Year	Total Operating Expenses*		Aircraft Operating Expenses								Ground and Indirect Expense		Net Operating Income or Loss
			Flight Operations		Maintenance Flight Equipment		Depreciation and Amortization Flight Equipment and Other						
	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	Amount	Percent	
1969	1,638,275	100.0	456,431	27.9	219,053	13.4	157,019	9.6	805,770	49.2	51,113		
1970	1,894,398	100.0	515,182	27.2	241,077	12.7	187,889	10.0	950,241	50.2	19,202		
1971	2,050,095	100.0	573,008	28.2	269,031	12.7	190,220	9.6	1,017,834	50.0	30,167		
1972	2,233,879	100.0	595,859	26.7	300,476	13.4	211,908	9.5	1,125,635	50.4	50,421		
1973	2,458,971	100.0	680,521	27.6	316,597	12.9	213,772	8.8	1,248,081	50.7	67,907		
1974	2,994,713	100.0	1,037,441	34.6	356,187	12.0	213,966	7.1	1,387,119	46.3	-73,104		
1975	3,059,348	100.0	1,050,250	34.3	363,869	11.9	212,456	7.0	1,432,774	46.8	4,051		
1976	3,182,236	100.0	1,089,387	34.2	368,190	11.6	192,879	6.1	1,531,780	48.1	133,900		
1977	3,552,189	100.0	1,170,021	32.9	414,486	11.7	238,009	6.7	1,729,672	48.7	222,072		
1978	4,009,295	100.0	1,210,269	30.2	457,763	11.4	303,404	7.6	2,037,858	50.8	323,029		

\*Details may not add to total due to rounding.

Source: Bureau of Accounts and Statistics, CAB.

## VII. AIRMAN

Statistics pertaining to airmen, both pilot and nonpilot, were obtained from the official airmen certification records maintained by the Airmen Certification and Medical Certification Branches of the Mike Monroney Aeronautical Center at Oklahoma City, Oklahoma. Active pilots are those pilots who hold a pilot certificate and a valid medical certificate.



TABLE 7.1

ACTIVE AIRMEN CERTIFICATES HELD: DECEMBER 31, 1969-1978

Category	1969	1970	1971	1972	1973 3/	1974	1975	1976	1977	1978
Pilot--total . . . . .	720,028	732,729	741,009	750,869	714,607	733,728	728,187	744,246	783,932	798,833
Student . . . . .	203,520	195,861	186,428	181,477	181,905	180,795	176,978	188,801	203,510	204,874
Private . . . . .	299,491	303,779	312,656	321,413	298,921	305,848	305,863	309,005	327,424	337,644
Commercial . . . . .	176,585	186,821	192,409	196,228	182,444	192,425	189,342	187,801	188,763	185,833
Airline transport . . . .	31,442	34,430	35,949	37,714	38,139	41,002	42,592	45,072	50,149	55,881
Helicopter (only) . . . .	4,286	6,677	7,992	7,987	5,968	5,647	4,932	4,804	4,819	4,874
Glider (only) * . . . .	2,627	3,114	3,571	4,080	4,288	4,824	5,348	5,789	6,208	6,541
Lighter-than-air * . . . .	2,077	2,047	2,004	1,970	2,942	3,187	3,132	2,974	3,059	3,186
Nonpilot--total. . . . .	269,775	289,681	307,057	315,348	304,747	314,394	323,934	334,681	348,584	362,350
Mechanic 1/ . . . . .	170,716	184,647	193,295	201,700	193,337	198,863	205,436	212,303	220,768	228,743
Parachute rigger 1/ . . .	6,070	6,424	6,839	7,287	6,941	7,900	8,327	8,718	8,994	9,200
Ground instructor 1/. . .	41,234	44,176	46,145	48,450	46,827	49,249	51,365	53,464	55,717	57,738
Dispatcher 1/ . . . . .	5,026	5,293	5,480	5,637	5,527	5,576	5,741	5,838	5,972	6,161
Control tower operator . .	19,851	21,032	26,450	23,353	23,250	23,342	23,956	24,584	25,107	25,388
Flight navigator . . . . .	3,011	2,950	3,052	2,957	2,636	2,509	2,321	2,214	2,155	2,092
Flight engineer . . . . .	23,867	25,159	25,796	25,964	26,229	26,955	26,788	27,560	29,871	33,028
Flight instructor cer- tificates . . . . .	33,992	37,822	37,760	37,858	36,795	42,418	44,777	46,236	49,362	52,201
Instrument ratings 2/ . .	155,879	169,848	179,261	187,909	185,969	199,323	203,954	211,364	226,334	236,312

\* Glider and lighter-than-air pilots are not required to have a medical examination; however, the totals above represent pilots who received a medical examination.

1/ Numbers represent all certificates on record. No medical examination required.

2/ Special ratings shown on pilot certificates, i.e., do not indicate additional certificates.

3/ The decrease in the number of airmen resulted from a purging of the airmen certification files. During this process approximately 26 thousand duplicates or faulty records were eliminated.

r/ Revised.

TABLE 7.2

WOMEN ACTIVELY ENGAGED IN AVIATION: DECEMBER 31, 1969-1978

Category of Certificates Held	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Pilot--total . . . . .	29,419	29,472	31,216	33,001	34,356	36,943	37,934	41,643	47,294	49,874
Student . . . . .	16,055	15,787	16,417	17,053	18,593	19,298	19,600	22,254	25,705	26,354
Private . . . . .	11,174	11,409	12,332	13,391	13,232	14,465	14,952	15,838	17,702	19,267
Commercial . . . . .	1,824	1,897	2,032	2,196	2,083	2,596	2,733	2,857	3,090	3,306
Airline transport . . . . .	76	79	88	101	95	116	137	160	193	270
Helicopter (only) . . . . .	14	6	9	10	7	5	11	17	18	17
Glider (only) * . . . . .	111	141	169	201	216	271	301	352	391	433
Lighter-than-air * . . . . .	165	153	169	49	130	192	200	165	195	227
Nonpilot--total . . . . .	2,912	3,078	3,413	3,594	3,074	3,471	3,809	4,252	4,716	5,135
Mechanical <u>1/</u> . . . . .	269	302	322	349	284	315	360	422	505	600
Parachute rigger <u>1/</u> . . . . .	449	461	470	483	336	495	504	516	535	544
Ground instructor <u>1/</u> . . . . .	1,917	2,006	2,081	2,166	1,960	2,139	2,249	2,369	2,525	2,682
Dispatcher <u>1/</u> . . . . .	36	38	39	40	39	42	50	55	65	76
Control tower operator . . . . .	222	271	501	556	453	473	638	874	1,044	1,151
Flight engineer . . . . .	18	0	0	0	2	7	8	16	42	82
Flight navigator . . . . .	1	0	0	0	0	0	0	0	0	0
Flight instructor . . . . .	560	589	646	664	618	834	945	1,054	1,238	1,458

NOTE: Instrument ratings not reported.

\* Glider and lighter-than-air pilots are not required to have a medical examination; however, the totals above represent pilots who received a medical examination.

1/ No medical examination required.

TABLE 7.3

AIRMEN CERTIFICATES ISSUED, BY CATEGORY: CALENDAR YEARS 1974-1978

Category of Certificate	1974			1975			1976			1977			1978		
	Original Issuances	Additional Ratings	Original Issuances	Additional Ratings	Original Issuances	Additional Ratings	Original Issuances	Additional Ratings	Original Issuances	Additional Ratings	Original Issuances	Additional Ratings	Original Issuances	Additional Ratings	Additional Ratings
Pilot--total . . . . .	185,914	38,700	193,888	35,395	204,489	39,112	212,331	44,708	208,563	39,959	0	129,488	16,048	17,501	5,921
Student . . . . .	113,997	0	127,424	0	129,280	0	138,816	0	129,488	0	15,104	58,064	11,789	6,912	1,122
Private . . . . .	48,501	9,866	49,733	9,734	55,583	12,618	54,657	15,104	58,064	15,104	22,806	11,789	6,912	1,122	287
Commercial . . . . .	17,693	24,638	12,620	21,860	13,577	22,059	11,121	22,806	11,789	22,806	6,229	6,912	1,122	287	188
Airline transport . . . . .	3,219	3,557	2,765	3,370	3,869	3,901	5,697	6,229	6,912	6,229	328	792	429	14	0
Helicopter (only) . . . . .	1,298	387	866	251	1,064	276	944	328	792	328	220	188	14	0	0
Glider (only) . . . . .	832	244	230	158	848	238	792	220	188	220	21	429	14	0	0
Lighter-than-air . . . . .	374	8	250	22	268	20	304	21	429	21	21	429	14	0	0
Nonpilot--total . . . . .	12,210	7,837	12,491	7,137	15,069	7,751	16,066	7,267	16,418	7,267	3,307	8,791	3,269	50	574
Mechanic . . . . .	6,618	2,748	6,930	2,606	8,501	3,149	9,121	3,307	8,791	3,307	36	235	50	574	0
Parachute rigger . . . . .	468	83	414	62	454	76	304	36	235	36	729	2,193	574	0	0
Ground instructor . . . . .	2,416	852	2,193	714	2,390	707	2,404	729	2,193	729	0	193	0	0	0
Dispatcher . . . . .	152	0	140	1	106	0	161	0	193	0	0	193	0	0	0
Control tower operator . . . . .	1,733	3,979	2,164	3,657	2,382	3,686	1,645	3,008	1,391	3,008	16	3,607	2,540	1	245
Flight navigator . . . . .	7	1	4	0	2	0	16	0	8	0	187	3,607	2,540	1	245
Flight engineer . . . . .	816	174	646	97	1,234	133	2,415	187	3,607	187	0	3,607	2,540	1	245
Flight instructor certificates 1/ . . . . .	6,312	3,399	5,233	3,427	6,137	4,718	6,352	6,397	5,930	6,397	0	5,930	5,375	0	16,265
Instrument ratings* . . . . .	0	19,012	0	16,495	0	18,155	0	18,764	0	18,764	0	0	16,265	0	0

NOTE: Additional ratings are entered on current airman certificates as follows:

Private, commercial, and airline transport pilot--aircraft category, class, and type instrument rating.

Helicopter pilot--instrument and type ratings.

Flight instructor--ratings for each aircraft category in which the holder is qualified, and for instrument flying instruction.

Mechanic--airframe and powerplant ratings.

Parachute rigger--senior or master rigger ratings.

Ground instructor--ratings for each subject in which the holder is qualified to give instruction.

Air traffic control tower operator--junior/senior ratings for airports where holder may control air traffic.

\*Special ratings shown on pilot certificates represented above; not to be added to total.

1/Not included in total.



TABLE 7.4

INSTRUMENT RATINGS ISSUED: 1978 AND 1977

Class of Certificate	1978	1977	Percent Change 1977-1978
Total--all groups . . . . .	16,899	18,764	-10
Private pilots--total . . . . .	9,690	8,986	+8
Private airplane (only) . . . . .	9,032	8,415	+7
Private airplane, private glider . . . . .	127	127	0
Private airplane, commercial glider . . . . .	6	4	+50
Private airplane, private helicopter . . . . .	27	26	+4
Private airplane, commercial helicopter . . . . .	225	180	+25
Private airplane, private glider, private helicopter . . . . .	1	0	+
Private airplane, other . . . . .	272	234	+16
Commercial pilots--total . . . . .	6,575	9,232	-29
Commercial airplane (only) . . . . .	5,588	8,036	-30
Commercial airplane, private glider . . . . .	85	97	-12
Commercial airplane, commercial glider . . . . .	82	88	-7
Commercial airplane, private helicopter . . . . .	6	12	-50
Commercial airplane, commercial helicopter . . . . .	796	975	-18
Commercial airplane, private glider, commercial heli- copter . . . . .	1	3	-67
Commercial airplane, commercial glider, commercial helicopter . . . . .	13	17	-24
Commercial airplane, other . . . . .	4	4	0
Rotorcraft pilots--total . . . . .	634	546	+16
Commercial helicopter . . . . .	620	540	+15
Airline transport helicopter . . . . .	11	5	+120
Commercial helicopter, private glider . . . . .	1	1	0
Commercial helicopter, commercial glider . . . . .	1	0	+
Commercial helicopter, other . . . . .	1	0	+

TABLE 7.5

INSTRUMENT RATINGS HELD, BY CLASS OF CERTIFICATE: DECEMBER 31, 1977 AND 1978

Class of Certificate	1978	1977	Percent Change 1977-1978
Total--all groups . . . . .	236,312	226,334	+ 4
Private pilots--total . . . . .	<u>32,470</u>	<u>29,367</u>	<u>+11</u>
Private airplane (only) . . . . .	30,090	27,243	+10
Private airplane, private glider . . . . .	730	674	+ 8
Private airplane, commercial glider . . . . .	57	56	+ 2
Private airplane, private helicopter . . . . .	211	180	+17
Private airplane, private glider, private helicopter . . . . .	10	9	+11
Private airplane, commercial helicopter . . . . .	1,354	1,188	+14
Private airplane, private gyroplane . . . . .	2	3	-33
Private airplane, private glider, commercial helicopter . . . . .	10	8	+25
Private airplane, commercial glider, commercial helicopter . . . . .	5	5	0
Private airplane, other . . . . .	1	1	0
Commercial pilots--total . . . . .	<u>145,268</u>	<u>144,248</u>	<u>+ 1</u>
Commercial airplane (only) . . . . .	123,301	122,426	+ 1
Commercial airplane, private glider . . . . .	1,672	1,580	+ 6
Commercial airplane, commercial glider . . . . .	3,371	3,280	+ 3
Commercial airplane, private helicopter . . . . .	128	119	+ 8
Commercial airplane, commercial helicopter . . . . .	16,055	16,103	- 1
Commercial airplane, private glider, commercial helicopter . . . . .	127	117	+ 9
Commercial airplane, commercial glider, commercial helicopter . . . . .	540	552	- 2
Commercial airplane, commercial gyroplane . . . . .	23	22	+ 5
Commercial airplane, commercial helicopter, commercial gyroplane . . . . .	26	25	+ 4
Commercial airplane, commercial gyroplane, commercial glider . . . . .	2	2	0
Commercial airplane, commercial glider, private helicopter . . . . .	8	6	+33
Commercial airplane, commercial gyroplane, commercial helicopter, commercial glider . . . . .	15	16	- 6
Airline transport pilots--total . . . . .	<u>55,881</u>	<u>50,149</u>	<u>+11</u>
Airline transport airplane . . . . .	55,331	49,698	+11
Airline transport airplane, airline transport helicopter . . . . .	550	451	+22
Rotorcraft pilots--total . . . . .	<u>2,693</u>	<u>2,570</u>	<u>+ 5</u>
Commercial helicopter . . . . .	2,653	2,535	+ 5
Airline transport helicopter . . . . .	30	25	+20
Rotorcraft, other . . . . .	10	10	0

TABLE 7.6  
ACTIVE HELICOPTER PILOTS BY CLASS OF CERTIFICATE:  
DECEMBER 31, 1978

Class of Certificate	Number of Certificates Held
Total . . . . .	28,890
Private helicopter . . . . .	290
Private gyroplane, private airplane . . . . .	37
Private helicopter, private airplane . . . . .	924
Private helicopter, private airplane, private glider . . . . .	30
Commercial airplane, private helicopter . . . . .	177
Commercial airplane, commercial gyroplane, commercial glider, commercial helicopter . . . . .	15
Commercial airplane, commercial glider, private helicopter . . . . .	9
Private gyroplane . . . . .	5
Private airplane, commercial glider, commercial helicopter . . . . .	11
Commercial helicopter . . . . .	4,454
Private airplane, commercial helicopter . . . . .	2,557
Commercial airplane, commercial helicopter . . . . .	18,866
Private airplane, private glider, commercial helicopter . . . . .	14
Commercial airplane, private glider, commercial helicopter . . . . .	147
Commercial airplane, commercial glider, commercial helicopter . . . . .	606
Commercial helicopter, private glider . . . . .	3
Commercial helicopter, commercial glider . . . . .	7
Commercial gyroplane, commercial airplane . . . . .	36
Commercial airplane, commercial gyroplane, commercial glider . . . . .	4
Commercial airplane, commercial gyroplane, commercial helicopter . . . . .	32
Commercial gyroplane, commercial helicopter, private airplane . . . . .	1
Commercial helicopter, commercial gyroplane . . . . .	2
Airline transport helicopter . . . . .	113
Airline transport airplane, airline transport helicopter . . . . .	550



TABLE 7.7

## ACTIVE GLIDER PILOTS BY CLASS OF CERTIFICATE

DECEMBER 31, 1978

Class of Certificate	Number of Certificates Held
Total . . . . .	18,610
Private glider . . . . .	5,474
Private airplane, private glider . . . . .	4,113
Private airplane, private glider, private helicopter . . . . .	30
Private airplane, private glider, commercial helicopter . . . . .	14
Commercial airplane, private glider . . . . .	2,103
Commercial airplane, private glider, commercial helicopter . . . . .	147
Commercial helicopter, private glider . . . . .	3
Private airplane, commercial glider . . . . .	564
Private airplane, commercial glider, commercial helicopter . . . . .	11
Commercial glider . . . . .	1,067
Commercial airplane, commercial glider . . . . .	4,443
Commercial airplane, commercial glider, private helicopter . . . . .	9
Commercial airplane, commercial glider, commercial helicopter . . . . .	606
Commercial helicopter, commercial glider . . . . .	7
Commercial airplane, commercial gyroplane, commercial glider and commercial helicopter . . . . .	15
Commercial airplane, commercial gyroplane, commercial glider . . . . .	4

TABLE 7.8

## ACTIVE HELICOPTER AND GLIDER PILOTS:

DECEMBER 31, 1974-78

Calendar year	Total Helicopter Pilots <sup>1/</sup>		Total Glider Pilots <sup>2/</sup>	
	Number	Percent Change	Number	Percent Change
1978 . . .	28,890	+1	18,610	+4
1977 . . .	28,566	+3	17,933	+6
1976 . . .	27,816	-1	16,866	+6
1975 . . .	27,872	-3	15,962	+6
1974 . . .	28,618	+18	15,013	+40

<sup>1/</sup> Includes pilots with ratings to fly helicopters only.

<sup>2/</sup> Includes pilots with ratings to fly gliders only.

TABLE 7.9

## TOTAL AND INSTRUMENT RATED PILOTS:

DECEMBER 31, 1974-1978

Calendar Year	Total Pilots <sup>1/</sup>	Instrument rated Pilots	
		Number	Percent of total
1978 . . . .	593,959	236,312	40
1977 . . . .	580,422	226,334	39
1976 . . . .	555,625	211,364	38
1975 . . . .	551,209	203,954	37
1974 . . . .	552,933	199,323	36

<sup>1/</sup> Excludes Student pilots.

TABLE 7.10

ACTIVE PILOT CERTIFICATES HELD, BY CATEGORY AND AGE GROUP OF HOLDER: 1978 AND 1977

Age Group	Type of Pilot Certificate									
	Total Active Pilots		Student		Private Airplane		Commercial Airplane		Airplane Transport	
	1978	1977	1978	1977	1978	1977	1978	1977	1978	1977
	1978	1977	1978	1977	1978	1977	1978	1977	1978	1977
Total . .	798,833	783,933	204,874	203,510	337,644	327,424	185,833	188,763	55,881	50,149
14-15 . . .	361	381	361	381	7,445	7,289	0	0	0	0
16-19 . . .	32,295	31,993	24,203	24,075	36,405	35,712	374	337	0	0
20-24 . . .	93,546	93,318	45,153	46,224	47,995	45,439	10,402	9,773	437	356
25-29 . . .	118,503	117,322	41,872	41,095	49,989	47,508	21,888	24,604	4,214	3,412
30-34 . . .	131,012	127,721	32,722	31,983	44,779	42,565	35,006	37,175	10,005	8,079
35-39 . . .	110,402	106,092	22,100	21,277	38,271	37,383	32,582	32,478	9,160	8,179
40-44 . . .	89,250	88,244	14,411	14,453	38,627	37,347	26,062	26,159	9,208	8,484
45-49 . . .	78,930	79,126	11,058	11,426	35,985	35,534	20,347	19,159	7,665	7,055
50-54 . . .	63,994	64,834	7,232	7,032	21,794	20,701	14,178	15,508	5,482	5,719
55-59 . . .	48,877	46,738	3,604	3,476	16,354	15,040	15,754	15,165	6,745	6,473
60 and over	31,663	28,164	2,158	2,088			9,240	7,842	2,965	2,392
Total . .	Helicopter (only)		Glider (only)		Lighter-than-air		Flight Instructor 1/			
	1978	1977	1978	1977	1978	1977	1978	1977		
	4,874	4,819	6,541	6,208	3,186	3,060	52,201	49,362		
	14-15 . . .	0	0	0	0	0	0	0		
16-19 . . .	10	10	243	264	20	18	137	102		
20-24 . . .	239	213	835	966	75	74	4,632	4,256		
25-29 . . .	1,254	1,609	1,090	999	190	164	7,972	7,768		
30-34 . . .	2,023	1,865	1,011	882	256	229	10,388	10,076		
35-39 . . .	733	608	706	633	342	352	8,401	7,877		
40-44 . . .	335	284	554	492	409	426	6,617	6,230		
45-49 . . .	167	148	547	572	519	513	4,934	4,512		
50-54 . . .	71	53	587	534	459	454	3,491	3,395		
55-59 . . .	31	21	487	465	462	437	3,261	3,106		
60 and over	11	8	481	401	454	393	2,368	2,040		

1/ Not included in total active pilots.



TABLE 7.11

ACTIVE NONPILOT CERTIFICATES HELD, BY CATEGORY  
AND AGE GROUP OF HOLDER: 1978 AND 1977

Age Group	Type of Certificate							
	Total Non-pilots		Mechanic <u>1/</u>		Parachute Rigger <u>1/</u>		Ground Instructor <u>1/</u>	
	1978	1977	1978	1977	1978	1977	1978	1977
Total . . .	362,350	348,584	228,743	220,768	9,200	8,994	57,738	55,717
14-15 . . .	19	13	4	4	0	0	15	9
16-19 . . .	687	617	573	514	4	2	70	55
20-24 . . .	15,390	14,730	9,556	8,632	291	362	2,142	2,088
25-29 . . .	30,766	31,270	17,334	18,020	1,191	1,325	4,562	4,517
30-34 . . .	49,590	47,977	28,288	28,001	1,526	1,458	7,289	7,375
35-39 . . .	46,266	43,896	24,986	23,331	1,350	1,297	6,870	6,119
40-44 . . .	40,905	39,857	22,932	23,067	1,370	1,347	4,539	4,107
45-49 . . .	38,732	36,876	26,107	25,450	996	874	3,831	3,832
50-54 . . .	36,261	38,387	26,649	28,027	725	735	5,133	5,791
55-59 . . .	45,362	43,526	32,534	31,008	678	614	8,303	8,217
60 and over	58,372	51,435	39,780	34,714	1,069	980	14,984	13,607
Total . . .	Dispatcher <u>1/</u>		Control Tower Operator		Flight Navigator		Flight Engineer	
	1978	1977	1978	1977	1978	1977	1978	1977
	6,161	5,972	25,388	25,107	2,092	2,155	33,028	29,871
14-15 . . .	0	0	0	0	0	0	0	0
16-19 . . .	0	0	40	46	0	0	0	0
20-24 . . .	40	30	2,925	3,309	0	0	436	309
25-29 . . .	233	225	5,289	5,561	1	1	2,156	1,621
30-34 . . .	551	576	6,055	5,490	13	31	5,868	5,046
35-39 . . .	736	691	3,362	3,290	304	401	8,658	8,767
40-44 . . .	669	677	3,316	3,351	575	561	7,504	6,747
45-49 . . .	667	650	2,576	2,272	353	317	4,202	3,481
50-54 . . .	722	750	816	815	280	303	1,936	1,966
55-59 . . .	936	962	763	757	385	406	1,763	1,562
60 and over	1,607	1,411	246	216	181	135	505	372

1/ Numbers represent all certificates on record. No medical examination required.

TABLE 7.12  
ACTIVE PILOTS AND FLIGHT INSTRUCTORS BY FAA REGION AND STATE:  
DECEMBER 31, 1978

FAA Region and States	Total Pilots	Student	Private	Commercial	Airline Transport	Miscella- neous <sup>1/</sup>	Flight Instructor <sup>2/</sup>
Total . . . . .	<u>798,833</u>	<u>204,874</u>	<u>337,644</u>	<u>185,833</u>	<u>55,881</u>	<u>14,601</u>	<u>52,201</u>
United States--total . . . . .	<u>785,581</u>	<u>201,244</u>	<u>335,020</u>	<u>181,903</u>	<u>53,144</u>	<u>14,270</u>	<u>51,624</u>
New England--total . . . . .	<u>34,209</u>	<u>9,359</u>	<u>13,483</u>	<u>7,436</u>	<u>3,225</u>	<u>706</u>	<u>2,181</u>
Connecticut . . . . .	9,780	2,403	3,509	2,148	1,506	214	703
Maine . . . . .	3,980	1,160	1,675	960	133	52	196
Massachusetts . . . . .	12,976	3,879	5,429	2,577	792	299	818
New Hampshire . . . . .	4,118	977	1,412	1,026	621	82	234
Rhode Island . . . . .	1,723	523	719	370	86	25	125
Vermont . . . . .	1,632	417	739	355	87	34	105
Eastern--total . . . . .	<u>104,146</u>	<u>28,153</u>	<u>42,359</u>	<u>24,287</u>	<u>6,981</u>	<u>2,366</u>	<u>7,412</u>
Delaware . . . . .	1,893	407	809	469	179	29	159
District of Columbia . . . . .	836	238	328	206	26	38	47
Maryland . . . . .	10,405	2,664	4,489	2,506	545	201	702
New Jersey . . . . .	16,997	4,410	6,718	3,824	1,671	374	1,300
New York . . . . .	31,652	9,252	13,091	6,682	1,742	885	2,207
Pennsylvania . . . . .	23,203	6,403	10,029	4,813	1,477	481	1,757
Virginia . . . . .	16,159	3,847	5,631	5,171	1,203	307	1,038
West Virginia . . . . .	3,001	932	1,264	616	138	51	202
Great Lakes--total . . . . .	<u>138,415</u>	<u>36,834</u>	<u>65,729</u>	<u>27,059</u>	<u>6,838</u>	<u>1,955</u>	<u>8,914</u>
Illinois . . . . .	34,411	8,786	15,792	6,883	2,349	601	2,300
Indiana . . . . .	15,654	4,385	7,565	3,034	500	170	1,031
Michigan . . . . .	25,631	7,137	12,441	4,596	1,057	400	1,661
Minnesota . . . . .	18,423	4,576	8,779	3,743	1,150	175	1,000
Ohio . . . . .	30,083	8,049	14,109	6,238	1,220	467	2,101
Wisconsin . . . . .	14,213	3,901	7,043	2,565	562	142	821
Central--total . . . . .	<u>51,678</u>	<u>13,048</u>	<u>25,276</u>	<u>10,581</u>	<u>2,221</u>	<u>552</u>	<u>3,099</u>
Iowa . . . . .	12,333	3,279	6,537	2,135	265	117	669
Kansas . . . . .	14,792	3,642	7,266	3,075	656	153	837
Missouri . . . . .	16,139	3,903	7,347	3,543	1,111	235	1,112
Nebraska . . . . .	8,414	2,224	4,126	1,828	189	47	481
Southern--total . . . . .	<u>119,237</u>	<u>30,439</u>	<u>46,200</u>	<u>30,962</u>	<u>9,434</u>	<u>2,202</u>	<u>7,845</u>
Alabama . . . . .	9,905	2,407	3,955	2,895	342	306	802
Florida . . . . .	46,608	11,038	17,910	12,413	4,550	697	3,111
Georgia . . . . .	17,205	4,199	5,909	4,522	2,259	316	1,050
Kentucky . . . . .	6,615	1,991	2,811	1,401	222	190	400
Mississippi . . . . .	6,102	1,665	2,373	1,787	212	65	387
North Carolina . . . . .	13,914	3,956	5,657	3,407	627	267	837
South Carolina . . . . .	7,073	2,047	2,745	1,872	324	85	450
Tennessee . . . . .	11,815	3,136	4,840	2,665	898	276	808
Southwest--total . . . . .	<u>97,637</u>	<u>24,102</u>	<u>38,977</u>	<u>25,666</u>	<u>7,199</u>	<u>1,693</u>	<u>6,883</u>
Arkansas . . . . .	7,366	2,025	3,036	1,995	251	59	476
Louisiana . . . . .	10,784	2,879	3,954	3,121	568	262	719
New Mexico . . . . .	6,617	1,652	2,902	1,643	254	166	428
Oklahoma . . . . .	14,682	3,665	6,810	3,409	631	167	993
Texas . . . . .	58,188	13,881	22,275	15,498	5,495	1,039	4,267
Rocky Mountain--total . . . . .	<u>41,388</u>	<u>11,215</u>	<u>17,478</u>	<u>9,230</u>	<u>2,489</u>	<u>976</u>	<u>2,640</u>
Colorado . . . . .	18,572	4,810	6,900	4,326	1,804	732	1,346
Montana . . . . .	5,851	1,559	2,846	1,252	153	41	323
North Dakota . . . . .	4,099	1,158	1,854	1,014	54	19	227
South Dakota . . . . .	3,755	1,072	1,770	807	63	43	212
Utah . . . . .	5,907	1,601	2,677	1,217	298	114	344
Wyoming . . . . .	3,204	1,015	1,431	614	117	27	188
Western--total . . . . .	<u>138,584</u>	<u>32,638</u>	<u>59,857</u>	<u>32,175</u>	<u>11,016</u>	<u>2,898</u>	<u>8,675</u>
Arizona . . . . .	15,491	3,921	6,463	3,818	905	384	986
California . . . . .	117,038	27,312	51,008	26,913	9,365	2,440	7,204
Nevada . . . . .	6,055	1,405	2,386	1,444	746	74	425
Northwest--total . . . . .	<u>45,787</u>	<u>11,948</u>	<u>19,901</u>	<u>10,637</u>	<u>2,635</u>	<u>666</u>	<u>3,031</u>
Idaho . . . . .	5,976	1,639	2,730	1,336	211	60	373
Oregon . . . . .	14,934	4,353	7,085	2,941	393	162	896
Washington . . . . .	24,877	5,956	10,086	6,360	2,031	444	1,762
Alaskan region--total . . . . .	<u>10,914</u>	<u>2,703</u>	<u>4,712</u>	<u>2,730</u>	<u>667</u>	<u>102</u>	<u>688</u>
Pacific region--total . . . . .	<u>3,586</u>	<u>805</u>	<u>1,048</u>	<u>1,140</u>	<u>439</u>	<u>154</u>	<u>256</u>
Outside U.S.--total . . . . .	<u>13,252</u>	<u>3,630</u>	<u>2,624</u>	<u>3,930</u>	<u>2,737</u>	<u>331</u>	<u>577</u>

NOTE: Puerto Rico and Virgin Islands are included in Outside U.S. total

<sup>1/</sup> Includes glider helicopter, and lighter-than-air.

<sup>2/</sup> Not included in total.

TABLE 7.13

ACTIVE NONPILOT AIRMEN CERTIFICATES HELD, BY FAA REGION AND STATE:  
DECEMBER 31, 1978 <sup>1/</sup>

FAA Region and States	Total Nonpilot Airmen	Mechanic	Parachute Rigger	Ground Instructor	Dispatcher	Control Tower Operator	Flight Navigator	Flight Engineer
Total . . . . .	362,350	228,743	9,200	57,738	6,161	25,388	2,092	33,028
United States--total . . . . .	350,896	221,396	9,076	56,806	4,877	24,971	1,977	31,793
New England--total . . . . .	18,054	11,573	393	2,725	134	999	227	2,003
Connecticut . . . . .	5,051	2,882	84	737	38	191	162	957
Maine . . . . .	1,154	661	42	241	12	127	6	65
Massachusetts . . . . .	8,661	6,496	178	1,144	65	345	23	410
New Hampshire . . . . .	1,742	676	29	281	12	225	29	490
Rhode Island . . . . .	926	579	48	189	4	51	4	51
Vermont . . . . .	520	279	12	133	3	60	3	30
Eastern--total . . . . .	61,802	41,907	1,516	8,991	1,392	3,790	401	3,805
Delaware . . . . .	965	612	22	148	5	88	7	83
District of Columbia . . . . .	568	375	26	127	16	15	0	9
Maryland . . . . .	3,185	1,817	133	666	18	247	14	290
New Jersey . . . . .	10,421	6,974	232	1,483	84	370	122	1,156
New York . . . . .	26,624	19,024	368	3,341	1,073	1,616	152	1,050
Pennsylvania . . . . .	13,563	10,006	320	2,018	87	573	61	498
Virginia . . . . .	5,487	2,534	369	983	106	758	44	693
West Virginia . . . . .	989	565	46	225	3	123	1	26
Great Lakes--total . . . . .	46,154	28,144	1,203	9,121	440	3,226	67	3,953
Illinois . . . . .	14,103	8,430	272	2,558	229	793	24	1,797
Indiana . . . . .	4,581	2,797	191	912	21	452	7	201
Michigan . . . . .	7,361	4,623	196	1,665	38	579	10	250
Minnesota . . . . .	7,483	4,615	137	1,188	98	358	9	1,078
Ohio . . . . .	9,198	5,693	281	1,989	41	786	13	395
Wisconsin . . . . .	3,428	1,986	126	809	13	258	4	232
Central--total . . . . .	19,495	13,207	428	3,627	133	1,138	12	950
Iowa . . . . .	2,726	1,719	89	658	8	178	0	74
Kansas . . . . .	5,738	3,934	109	1,017	35	328	1	314
Missouri . . . . .	9,252	6,506	168	1,519	86	453	7	513
Nebraska . . . . .	1,779	1,048	62	433	4	179	4	49
Southern--total . . . . .	56,162	32,740	1,652	8,806	1,005	5,657	294	6,008
Alabama . . . . .	5,527	3,651	131	859	100	698	6	82
Florida . . . . .	26,463	16,245	439	3,941	618	1,955	227	3,038
Georgia . . . . .	10,891	6,158	283	1,249	190	803	22	2,186
Kentucky . . . . .	1,683	864	168	347	6	245	4	49
Mississippi . . . . .	1,707	817	43	395	3	385	3	61
North Carolina . . . . .	4,192	2,197	341	809	41	630	12	162
South Carolina . . . . .	1,996	890	86	452	7	420	6	135
Tennessee . . . . .	3,703	1,918	161	754	40	521	14	295
Southwest--total . . . . .	43,665	27,177	1,030	7,573	315	3,633	90	3,847
Arkansas . . . . .	1,853	1,012	65	453	11	236	3	73
Louisiana . . . . .	3,758	2,294	104	657	22	420	2	259
New Mexico . . . . .	1,849	948	80	433	12	316	6	54
Oklahoma . . . . .	10,169	7,603	186	1,571	19	575	11	204
Texas . . . . .	26,036	15,320	595	4,459	251	2,086	68	3,257
Rocky Mountain--total . . . . .	13,297	7,186	567	2,792	150	1,056	48	1,498
Colorado . . . . .	7,318	3,816	153	1,466	127	451	36	1,269
Montana . . . . .	1,706	881	255	398	3	120	4	45
North Dakota . . . . .	847	493	22	181	2	132	0	17
South Dakota . . . . .	879	493	28	228	1	108	0	21
Utah . . . . .	1,721	965	81	340	12	203	5	115
Wyoming . . . . .	826	538	28	179	5	42	3	31
Western--total . . . . .	70,361	46,052	1,424	9,857	918	3,790	673	7,647
Arizona . . . . .	5,818	3,783	168	1,051	28	489	22	277
California . . . . .	62,590	41,428	1,205	8,426	872	3,067	572	7,020
Nevada . . . . .	1,953	841	51	380	18	234	79	350
Northwest--total . . . . .	15,660	9,323	693	2,473	174	1,070	137	1,790
Idaho . . . . .	1,529	883	137	285	5	151	8	60
Oregon . . . . .	3,211	1,989	222	601	19	187	32	161
Washington . . . . .	10,920	6,451	334	1,587	150	732	97	1,569
Alaskan region--total . . . . .	3,449	2,157	118	591	109	315	8	151
Pacific region--total . . . . .	2,797	1,930	52	250	107	297	20	141
Outside U.S.--total . . . . .	11,454	7,347	124	932	1,284	417	115	1,235

NOTE: Puerto Rico and Virgin Islands are included in Outside of U.S. total.

<sup>1/</sup>Data for control tower operators, flight engineers, and flight navigators represent total active ratings held; i.e., certificate holders also hold a current medical certificate. Data for dispatchers, mechanics, parachute riggers, and ground instructors, represent total ratings issued to date. No medical certificate is required.



## VIII. GENERAL AVIATION AIRCRAFT

Beginning in 1977, General Aviation Aircraft Activity information was obtained using the General Aviation Activity and Avionics Survey. Heretofore, the activity data were collected from each owner of a registered aircraft using the Aircraft Registration, Eligibility, Identification, and Activity report. Like the old form the survey collects data relative to flight hours, airframe hours and the avionics equipment on board the aircraft. In addition, the survey collects information about the number of hours flown under Instrument Flight Rules, fuel consumption rates, and the state where the aircraft is based.

The sample of 30,643 aircraft was selected from approximately 213,000 registered general aviation aircraft. The sample is a scientifically designed random sample which represents all general aviation aircraft registered in the United States.

Because the estimates are derived from a sample--not the total population of aircraft--a certain amount of sampling error is introduced. The user must consider this error along with the estimate itself when making an inference or drawing any conclusions about the aircraft population. Although the exact value of the sample error is unknown, a quantity known as the standard error is used to approximate it. Using the standard error one can develop an interval within which the true population estimate will lie with a known probability. The probability that the true value lies within the interval depends on the width of the interval, i.e., the estimate

plus or minus 1, 2, or 3 times the standard error. The table below shows selected interval widths and their corresponding confidence.

<u>Width of Interval</u>	<u>Approximate Confidence That Interval Includes True Value</u>
1 standard error	68%
2 standard errors	95%
3 standard errors	99%

If, for example, the estimate for the total number of active piston powered rotorcraft were 2,658 and the standard error were 176, then the 95% confidence interval would be  $2,658 \pm 2(176)$  or (2306, 3010). One would say that there is a 95% chance that the number of active piston powered rotorcraft lies between 2306 and 3010.

In some tables the standard error is expressed as a percent. To calculate the standard error multiply the estimate by the percentage. To derive the 95% confidence interval proceed as before. For example, total hours flown is shown as 35,792 thousand hours and the percentage standard error is 3.0%. The 95% confidence interval is:

$$35,792 \pm (2 \times 3\% \times 35,792) =$$

$$35,792 \pm 2148 =$$

$$(33,644; 37,940)$$

The standard error, percent standard error, or a code for the standard error is shown for each estimate made from the sample in this chapter.

More detailed estimates and a more detailed discussion of the survey and its methodology are available in 1977 General Aviation Activity and Avionics Survey.

TABLE 8.1

GENERAL AVIATION ACTIVE AIRCRAFT BY PRIMARY USE BY AIRCRAFT TYPE  
(Standard Error is shown in Parenthesis)

	1977										
	Total Active	Executive	Business	Personal	Aerial Application	Instructional	Air Taxi	Industrial	Rental	Other	Inactive
Fixed-Wing--total	175,951 (1,016)	8,432 (A)	40,723 (A)	85,172 (A)	6,462 (A)	15,396 (B)	5,874 (A)	978 (C)	8,366 (B)	3,854 (B)	26,055 (A)
Piston--total	170,783 (1,015)	5,017 (A)	40,129 (A)	85,118 (A)	6,456 (A)	15,312 (B)	5,222 (A)	955 (C)	8,273 (B)	3,624 (B)	25,739 (A)
One Engine	149,300 (1,002)	1,159 (C)	31,533 (A)	81,737 (A)	6,154 (A)	14,543 (B)	2,009 (B)	870 (C)	7,731 (B)	2,929 (B)	23,977 (A)
Two Engine	21,301 (165)	3,856 (A)	8,587 (A)	3,378 (B)	235 (D)	768 (C)	3,165 (B)	85 (D)	509 (C)	677 (B)	1,588 (B)
Other Piston	182 (11)	1 (D)	8 (D)	3 (D)	66 (B)	0 (A)	47 (A)	0 (A)	32 (C)	17 (C)	174 (A)
Turboprop--total	2,890 (20)	1,824 (A)	419 (B)	38 (D)	0 (A)	15 (D)	434 (B)	4 (D)	63 (D)	88 (D)	84 (C)
Two Engine	2,825 (20)	1,814 (A)	411 (B)	38 (D)	0 (A)	13 (D)	431 (B)	4 (D)	47 (D)	63 (D)	52 (D)
Other Turboprop	64 (4)	9 (C)	8 (C)	0 (A)	0 (A)	1 (D)	3 (A)	0 (A)	16 (C)	25 (B)	31 (B)
Turbojet--total	2,277 (22)	1,589 (A)	174 (C)	15 (D)	6 (D)	68 (D)	217 (B)	18 (D)	29 (B)	142 (C)	231 (A)
Two Engine	1,959 (19)	1,477 (A)	99 (C)	10 (D)	6 (D)	62 (D)	208 (B)	18 (D)	0 (A)	75 (D)	35 (D)
Other Turbojet	318 (10)	111 (B)	74 (C)	5 (D)	0 (A)	5 (D)	9 (C)	0 (A)	29 (B)	66 (C)	195 (A)
Rotorcraft--total	4,726 (179)	344 (D)	489 (C)	550 (B)	929 (B)	310 (D)	961 (B)	361 (C)	30 (D)	715 (C)	2,152 (A)
Piston	2,658 (176)	53 (D)	353 (D)	539 (B)	869 (C)	139 (D)	86 (D)	195 (C)	6 (D)	382 (C)	2,025 (A)
Turbine	2,067 (27)	290 (D)	135 (D)	10 (D)	59 (C)	170 (D)	875 (B)	166 (D)	24 (D)	332 (C)	127 (C)
Other--total	3,616 (69)	5 (D)	183 (B)	2,569 (A)	0 (A)	389 (B)	2 (D)	1 (D)	221 (C)	229 (B)	831 (A)
Total All Aircraft	184,294 (1,034)	8,782 (450)	41,396 (1,902)	88,292 (2,416)	7,392 (303)	16,096 (1,690)	6,838 (502)	1,342 (239)	8,619 (1,310)	4,799 (535)	28,304 (A)

Note: Row and Column summations may differ from printed totals due to estimation procedures.

Standard Error

Greater Than	Less Than or Equal To	Code			
		0%	10%	20%	30%
			A	B	C
					D



TABLE 8.2

GENERAL AVIATION ACTIVE AIRCRAFT BY AIRCRAFT TYPE  
1973-1977

	1977 (Standard Error)	1976 (R)	1975 (R)	1974 (R)	1973 (R)
Fixed-Wing--total	<u>175,951</u> (1,061)	<u>170,393</u>	<u>161,183</u>	<u>154,911</u>	<u>147,995</u>
Piston--total	<u>170,783</u> (1,015)	<u>166,059</u>	<u>156,936</u>	<u>151,255</u>	<u>144,766</u>
One Engine	149,300 (1,002)	144,752	136,639	131,512	126,074
Two Engine	21,301 (165)	21,111	20,119	19,553	18,502
Other Piston	182 (11)	196	178	190	190
Turboprop--total	<u>2,890</u> (20)	<u>2,453</u>	<u>2,504</u>	<u>2,095</u>	<u>1,849</u>
Two Engine	2,825 (20)	2,396	2,440	2,020	1,777
Other Turboprop	64 (4)	57	64	75	72
Turbojet--total	<u>2,277</u> (22)	<u>1,881</u>	<u>1,743</u>	<u>1,561</u>	<u>1,380</u>
Two Engine	1,959 (19)	1,692	1,547	1,385	1,196
Other Turbojet	318 (10)	189	196	176	184
Rotorcraft--total	<u>4,726</u> (179)	<u>4,425</u>	<u>4,054</u>	<u>3,597</u>	<u>3,115</u>
Piston	2,658 (176)	2,701	2,498	2,315	2,122
Turbine	2,067 (27)	1,724	1,556	1,282	993
Other--total	<u>3,616</u> (69)	<u>3,146</u>	<u>2,812</u>	<u>2,525</u>	<u>2,201</u>
Total All Aircraft	<u>184,294</u> (1,034)	<u>177,964</u>	<u>168,049</u>	<u>161,033</u>	<u>153,311</u>

Note: Columns may not add to totals due to rounding and estimation procedures.

(R): FAA revised data as of December, 1978.

TABLE 8.3

GENERAL AVIATION TOTAL HOURS FLOWN BY PRIMARY USE BY AIRCRAFT TYPE  
(Percent Standard Error is shown in Parenthesis)

1977

Aircraft Type	Total	Executive	Business	Personal	Aerial Application	Instructional	Air Taxi	Industrial	Rental	Other
Fixed-Wing--total	33,679,153 (3.2%)	3,367,276 (6.4%)	6,650,506 (8.6%)	8,300,328 (4.8%)	1,858,171 (6.6%)	6,269,739 (13.4%)	3,430,334 (9.2%)	287,680 (24.3%)	2,751,781 (18.1%)	579,057 (15.1%)
Piston--total	30,964,739 (3.4)	1,849,398 (10.7)	6,484,237 (8.8)	8,292,140 (4.8)	1,855,904 (6.6)	6,202,866 (13.5)	2,767,812 (10.4)	282,268 (24.9)	2,644,155 (18.4)	492,070 (16.4)
One Engine	24,916,438 (4.2)	436,426 (34.5)	4,686,882 (11.4)	7,811,563 (5.0)	1,802,225 (6.8)	5,965,167 (14.1)	1,044,376 (20.3)	258,898 (27.0)	2,468,896 (19.6)	350,709 (20.4)
Two Engine	5,951,828 (3.8)	1,413,259 (9.4)	1,793,041 (9.2)	480,389 (13.2)	46,699 (35.0)	239,101 (30.0)	1,654,938 (11.4)	23,292 (39.8)	160,186 (28.8)	139,335 (19.3)
Other Piston	96,473 (5.1)	460 (89.7)	2,453 (36.3)	32 (43.4)	8,103 (17.2)	0 (0.0)	68,556 (7.2)	0 (0.0)	15,059 (25.7)	916 (40.5)
Turboprop--total	1,549,184 (4.6)	804,048 (5.9)	112,371 (18.0)	6,145 (54.6)	0 (0.0)	7,222 (70.0)	453,730 (15.6)	1,747 (154.6)	92,979 (40.3)	17,326 (37.4)
Two Engine	1,517,361 (4.6)	800,989 (5.9)	106,380 (18.5)	6,145 (54.6)	0 (0.0)	7,159 (78.5)	451,958 (15.7)	1,747 (154.6)	77,975 (53.2)	11,326 (53.1)
Other Turboprop	31,823 (4.3)	3,055 (32.8)	5,877 (37.7)	0 (0.0)	0 (0.0)	91 (62.7)	1,898 (0.0)	0 (0.0)	14,259 (31.0)	6,033 (19.8)
Turbojet--total	1,165,228 (4.3)	711,950 (5.6)	53,019 (22.7)	2,000 (45.6)	2,263 (69.7)	59,530 (46.8)	222,002 (18.0)	3,661 (56.4)	14,745 (19.4)	73,467 (27.4)
Two Engine	1,043,204 (4.7)	661,165 (5.8)	33,292 (30.3)	1,838 (63.9)	2,263 (69.7)	55,326 (50.4)	213,883 (18.8)	3,661 (56.4)	0 (0.0)	53,477 (45.8)
Other Turbojet	122,024 (9.3)	50,793 (21.1)	19,727 (35.6)	163 (47.8)	0 (0.0)	3,864 (89.9)	8,137 (30.0)	0 (0.0)	14,745 (19.4)	19,357 (32.3)
Rotorcraft--total	1,867,644 (6.9)	120,263 (33.4)	157,814 (28.3)	23,986 (20.6)	201,385 (33.2)	207,682 (34.4)	697,539 (16.9)	165,092 (30.1)	11,487 (66.6)	275,050 (23.2)
Piston	608,603 (14.7)	7,869 (86.1)	99,647 (34.6)	23,212 (20.9)	174,670 (37.2)	36,768 (44.8)	38,093 (56.9)	71,882 (41.7)	2,705 (145.2)	150,114 (34.4)
Turbine	1,259,041 (7.4)	112,439 (35.8)	58,306 (47.8)	779 (111.1)	27,075 (24.7)	171,555 (52.3)	659,611 (17.6)	93,509 (43.5)	8,786 (74.6)	124,937 (30.0)
Other--total	244,761 (6.7)	202 (101.0)	11,656 (17.4)	130,150 (6.8)	0 (0.0)	51,076 (16.8)	105 (125.7)	13 (108.6)	30,198 (24.2)	211,105 (48.1)
Total All Aircraft	35,791,558 (3.0)	3,487,388 (4.5)	6,821,792 (7.2)	8,453,116 (3.9)	2,057,547 (6.0)	6,529,100 (7.8)	4,130,267 (4.4)	453,399 (9.6)	2,792,799 (9.8)	879,118 (10.6)

Note: Row and Column summations may differ from printed totals due to estimation procedures.

TABLE 8.4  
GENERAL AVIATION TOTAL HOURS FLOWN BY AIRCRAFT TYPE  
1973-1977  
(Hours in Thousands)

	1977 (Standard Error)	1976 (R)	1975 (R)	1974 (R)	1973 (R)
Fixed-Wing--total	<u>33,679</u> (1,064)	<u>31,950</u>	<u>30,298</u>	<u>29,758</u>	<u>28,599</u>
Piston--total	<u>30,965</u> (1,061)	<u>29,713</u>	<u>28,165</u>	<u>27,760</u>	<u>26,798</u>
One Engine	24,916 (1,036)	24,328	22,914	22,430	21,747
Two Engine	5,951 (227)	5,301	5,167	5,235	4,967
Other Piston	96 (5)	84	84	95	84
Turboprop--total	<u>1,549</u> (71)	<u>1,326</u>	<u>1,307</u>	<u>1,245</u>	<u>1,117</u>
Two Engine	1,517 (70)	1,306	1,271	1,203	1,080
Other Turboprop	32 (5)	20	36	42	37
Turbojet--total	<u>1,165</u> (50)	<u>911</u>	<u>826</u>	<u>753</u>	<u>684</u>
Two Engine	1,043 (49)	844	755	690	595
Other Turbojet	122 (11)	67	71	63	89
Rotorcraft--total	<u>1,868</u> (129)	<u>1,703</u>	<u>1,482</u>	<u>1,426</u>	<u>1,169</u>
Piston	609 (90)	753	686	729	654
Turbine	1,259 (93)	950	796	697	515
Other--total	245 (16)	<u>270</u>	<u>244</u>	<u>227</u>	<u>207</u>
Total All Aircraft	35,791 (1,073)	33,922	32,024	31,413	29,974

Note: Columns may not add to totals due to rounding and estimation procedures.

(R): FAA revised data as of December, 1978.



TABLE 8.5

GENERAL AVIATION ACTIVE AIRCRAFT AVERAGE FLIGHT HOURS BY AIRCRAFT TYPE  
1973-1977

	1977 (Standard Error)	1976	1975	1974	1973
Fixed-Wing--total	<u>191.3</u> (5.9)	<u>187.5</u>	<u>188.0</u>	<u>192.1</u>	<u>193.2</u>
Piston--total	<u>181.3</u> (6.1)	<u>178.9</u>	<u>179.5</u>	<u>183.5</u>	<u>185.1</u>
One Engine	166.5 (6.8)	168.1	167.7	170.6	172.5
Two Engine	280.4 (10.4)	251.1	256.8	267.7	268.5
Other Piston	528.8 (21.3)	428.6	471.9	500.0	442.1
Turboprop--total	<u>533.4</u> (23.5)	<u>540.6</u>	<u>522.0</u>	<u>594.3</u>	<u>604.1</u>
Two Engine	534.5 (24)	545.1	520.9	595.5	607.8
Other Turboprop	481.9 (8.5)	350.9	562.5	560.0	513.9
Turbojet--total	<u>509.0</u> (20.2)	<u>484.3</u>	<u>473.9</u>	<u>482.4</u>	<u>495.7</u>
Two Engine	527.7 (22.4)	498.8	488.0	498.2	497.5
Other Turbojet	385.0 (42.2)	354.5	362.2	358.0	483.7
Rotorcraft--total	<u>396.3</u> (25.5)	<u>384.9</u>	<u>365.6</u>	<u>396.4</u>	<u>375.3</u>
Piston	230.5 (29.6)	278.8	274.6	314.9	308.2
Turbine	608.3 (44.1)	551.0	511.6	543.7	518.6
Other--total	<u>67.8</u> (4.2)	<u>85.8</u>	<u>86.8</u>	<u>89.9</u>	<u>94.0</u>
Total All Aircraft	194.2 (5.7)	190.6	190.6	195.1	195.5

Note: Columns may not add to totals due to rounding and estimation procedures.

TABLE 8.6

GENERAL AVIATION ACTIVE AIRCRAFT AND HOURS FLOWN  
BY FAA REGION AND STATE OF BASED AIRCRAFT  
1977

FAA Region and State	Active Aircraft		Hours Flown	
	Aircraft	Standard Error	Hours (000)	Standard Error (000)
Total	184,294	1,034	35,792	1,073
New England--total	6,633	856	1,316	213
Connecticut	1,444	398	375	153
Maine	1,050	343	164	67
Massachusetts	2,463	546	460	126
New Hampshire	993	332	160	77
Rhode Island	299	183	65	48
Vermont	386	204	74	43
Eastern--total(p)	21,940	1,406	4,089	398
Delaware	608	230	109	65
District of Columbia	119	51	51	26
Maryland	2,464	539	420	127
New Jersey	4,060	730	832	217
New York(p)	6,092	488	1,183	124
Pennsylvania	5,310	832	949	266
Virginia	2,296	523	384	108
West Virginia	965	324	145	50
Great Lakes--total(p)	33,337	1,697	5,907	718
Illinois(p)	7,716	768	1,607	379
Indiana(p)	4,183	651	812	149
Michigan	6,818	940	1,197	352
Minnesota	4,122	696	509	125
Ohio	6,978	879	1,174	262
Wisconsin	3,519	636	562	169
Central--total	13,666	1,206	2,393	412
Iowa	3,524	635	473	113
Kansas	3,894	692	671	171
Missouri	3,905	707	754	304
Nebraska	2,341	442	482	151
Southern--total(p)	27,085	1,490	5,238	393
Alabama	2,385	580	524	225
Florida(p)	9,246	639	1,796	187
Georgia	3,750	636	575	110
Kentucky	1,385	404	248	77
Mississippi	1,895	442	419	103
North Carolina	3,717	673	591	127
Puerto Rico	404	219	133	49
South Carolina	1,485	421	293	87
Tennessee	2,607	563	561	158
Southwest--total(p)	25,880	1,234	5,840	599
Arkansas	2,597	507	622	159
Louisiana	3,350	510	1,164	201
New Mexico	1,747	364	199	45
Oklahoma	3,827	643	666	137
Texas(p)	14,355	776	3,108	413
Rocky Mountain--total	11,118	1,005	2,122	255
Colorado	3,497	583	617	145
Montana	2,230	428	393	103
North Dakota	1,508	385	266	126
South Dakota	1,298	361	244	90
Utah	1,406	423	301	103
Wyoming	1,176	306	267	97
Western--total(p)	28,536	1,256	5,660	496
Arizona	3,700	647	741	195
California(p)	23,344	1,035	4,533	339
Nevada	1,491	389	302	109
Northwest--total	11,372	986	2,012	420
Idaho	2,080	495	501	241
Oregon	4,284	669	829	247
Washington	4,995	560	653	146
Alaskan--total	5,130	359	933	113
Pacific--total	573	259	191	92
Hawaii	541	255	182	92
Other U.S. Territories	137	113	58	55
Foreign--total(l)	234	150	40	32

NOTE: Column totals may differ from printed totals due to estimation procedures.

(p)Preliminary result.

(l)Includes European region.

TABLE 8.7  
GENERAL AVIATION REGISTERED AIRCRAFT: AVIONICS EQUIPMENT BY AIRCRAFT TYPE  
1977

	360 Channels or Less	VHF Communications 720 Channels or More	No Comm. Equipment	Transponder Equipment 4096 Code	Altitude Encoding	No Trans- ponder	ILS Receiving Equipment Local- izer	Marker Beacon	Glide Slope	MLS	No ILS
Fixed-Wing--total	122,223 (A)	52,094 (A)	94,773 (A)	33,195 (A)	106,403 (A)	42,374 (A)	94,911 (A)	85,972 (A)	67,705 (A)	687 (D)	97,426 (A)
Piston--total	120,939 (A)	47,841 (A)	89,753 (A)	33,115 (A)	101,063 (A)	37,292 (A)	94,766 (A)	80,722 (A)	62,460 (A)	631 (D)	97,240 (A)
One Engine	108,846 (A)	36,408 (A)	69,202 (A)	32,527 (A)	79,307 (A)	20,884 (A)	93,338 (A)	59,215 (A)	41,539 (A)	419 (D)	96,064 (A)
Two Engine	11,870 (A)	11,330 (A)	20,306 (A)	549 (B)	21,520 (A)	16,333 (A)	1,330 (B)	21,471 (A)	20,691 (A)	212 (D)	1,079 (B)
Other Piston	222 (A)	102 (A)	244 (A)	38 (B)	235 (A)	74 (B)	117 (B)	235 (A)	230 (A)	0 (A)	97 (B)
Turboprop--total	726 (B)	2,310 (A)	2,778 (A)	2 (D)	2,960 (A)	2,785 (A)	11 (D)	2,919 (A)	2,902 (A)	24 (D)	52 (D)
Two Engine	671 (B)	2,268 (A)	2,698 (A)	1 (D)	2,871 (A)	2,720 (A)	5 (D)	2,833 (A)	2,819 (A)	24 (D)	42 (D)
Other Turboprop	54 (A)	41 (B)	79 (A)	1 (A)	89 (A)	65 (A)	6 (C)	86 (A)	83 (A)	0 (A)	9 (C)
Turbojet--total	557 (A)	1,942 (A)	2,240 (A)	78 (C)	2,379 (A)	2,295 (A)	113 (B)	2,357 (A)	2,342 (A)	30 (D)	134 (B)
Two Engine	412 (B)	1,644 (A)	1,861 (A)	15 (D)	1,978 (A)	1,945 (A)	15 (D)	1,974 (A)	1,971 (A)	16 (D)	19 (D)
Other Turbojet	145 (A)	298 (A)	378 (A)	62 (B)	401 (A)	349 (A)	97 (B)	382 (A)	370 (A)	14 (D)	114 (A)
Rotocraft--total	2,854 (A)	2,123 (A)	1,338 (B)	2,109 (A)	1,732 (B)	206 (D)	5,112 (A)	773 (B)	305 (D)	1 (D)	6,054 (A)
Piston	1,952 (A)	745 (C)	389 (D)	1,960 (A)	579 (C)	30 (D)	4,072 (A)	92 (D)	15 (D)	1 (D)	4,551 (A)
Turbine	901 (B)	1,378 (A)	948 (B)	149 (D)	1,153 (B)	175 (D)	1,039 (B)	681 (B)	289 (D)	0 (A)	1,502 (A)
Other--total	1,941 (A)	65 (D)	14 (D)	2,430 (A)	52 (D)	16 (D)	4,382 (A)	6 (D)	0 (A)	0 (A)	4,428 (A)
Total All Aircraft	127,019 (A)	54,283 (A)	96,125 (A)	37,735 (A)	108,189 (A)	42,597 (A)	104,405 (A)	86,372 (A)	68,011 (A)	688 (D)	107,909 (A)

Note: Column summations may differ from printed totals due to estimation procedures.

Standard Error		Code	
Greater Than	Less Than or Equal To		
0%	10%	A	
10	20	B	
20	30	C	
30	—	D	



TABLE 8.7 (Cont.)  
GENERAL AVIATION REGISTERED AIRCRAFT: AVIONICS EQUIPMENT BY AIRCRAFT TYPE  
1977  
Navigational Equipment

	100 Channels	VOR 200 Channels	More Than One Receiver	Automatic Direction Finder	Distance Measuring Equipment	Area Navigation Equipment	Long Range Navigation Equipment	Automatic Pilot	Radar Altimeter	Weather Radar	No Navigation Equipment
Fixed-Wing--total	85,812 (A)	81,425 (A)	96,521 (A)	92,248 (A)	46,201 (A)	10,286 (A)	1,743 (B)	57,370 (A)	9,738 (A)	12,007 (A)	39,497 (A)
Piston--total	84,927 (A)	76,910 (A)	91,306 (A)	86,973 (A)	41,053 (A)	8,407 (A)	727 (C)	52,543 (A)	5,656 (B)	7,222 (A)	39,369 (A)
One Engine	76,216 (A)	62,411 (A)	70,273 (A)	65,395 (A)	22,308 (A)	4,270 (B)	462 (D)	34,072 (A)	1,603 (C)	371 (D)	38,676 (A)
Two Engine	8,560 (A)	14,338 (A)	20,802 (A)	21,301 (A)	18,620 (A)	4,130 (A)	238 (C)	18,384 (A)	4,008 (A)	6,736 (A)	656 (B)
Other Piston	151 (A)	160 (A)	230 (A)	276 (A)	124 (A)	6 (D)	25 (C)	85 (A)	43 (B)	114 (A)	37 (C)
Turboprop--total	573 (B)	2,403 (A)	2,919 (A)	2,928 (A)	2,831 (A)	1,376 (A)	185 (C)	2,529 (A)	2,083 (A)	2,544 (A)	18 (D)
Two Engine	543 (B)	2,340 (A)	2,835 (A)	2,835 (A)	2,747 (A)	1,365 (A)	165 (C)	2,477 (A)	2,034 (A)	2,476 (A)	14 (D)
Other Turboprop	29 (B)	62 (A)	84 (A)	92 (A)	83 (A)	11 (D)	20 (C)	51 (A)	49 (B)	68 (A)	3 (D)
Turbojet--total	311 (B)	2,111 (A)	2,295 (A)	2,346 (A)	2,316 (A)	501 (B)	830 (A)	2,298 (A)	1,998 (A)	2,240 (A)	108 (B)
Two Engine	219 (B)	1,801 (A)	1,954 (A)	1,974 (A)	1,962 (A)	454 (B)	611 (A)	1,971 (A)	1,728 (A)	1,944 (A)	15 (D)
Other Turbojet	92 (B)	310 (A)	340 (A)	371 (A)	353 (A)	47 (C)	218 (A)	326 (A)	269 (A)	296 (A)	93 (B)
Rotorcraft--total	709 (B)	1,025 (B)	497 (C)	1,530 (B)	396 (C)	136 (D)	62 (D)	40 (D)	140 (D)	42 (D)	4,512 (A)
Piston	323 (C)	150 (D)	16 (D)	169 (D)	25 (D)	14 (D)	12 (D)	2 (D)	16 (D)	13 (D)	4,071 (A)
Turbine	386 (C)	874 (B)	481 (C)	1,360 (C)	371 (C)	122 (D)	49 (C)	38 (D)	123 (D)	28 (D)	440 (C)
Other--total	35 (D)	8 (D)	4 (D)	4 (D)	0 (A)	1 (D)	0 (A)	22 (D)	0 (A)	4 (D)	4,366 (A)
Total All Aircraft	86,556 (A)	82,459 (A)	97,024 (A)	93,782 (A)	46,597 (A)	10,424 (A)	1,805 (B)	57,434 (A)	9,878 (A)	12,054 (A)	48,376 (A)

Note: Column summations may differ from printed totals due to estimation procedures.

Standard Error		Code	
Greater Than	Less Than or Equal To		
0%	10%	A	
10	20	B	
20	30	C	
30	--	D	

## IX. AERONAUTICAL PRODUCTION AND EXPORTS

The aircraft production information presented in this chapter was obtained from the Bureau of Census, Form M37G: Complete Aircraft Plant Report and from production reports prepared by the General Aviation Manufacturers Association. The data shows the number of civil aircraft shipped by the United States manufacturers and includes both aircraft shipped within the United States and those exported.

Employment and earnings information was obtained from the Bureau of Labor Statistics publication Employment and Earnings.

Export data was obtained from the Current Industrial Reports: Complete Aircraft and Aircraft Engines published by the Bureau of Census.

TABLE 9.1

### TOTAL CIVIL AIRCRAFT PRODUCTION, WEIGHT, AND COST CALENDAR YEARS 1969-1978

Calendar Year	Number of Aircraft	Airframe Weight (000 lbs.)	Value Complete Units (\$000)	Average Unit Cost
1969	13,600	61,226	3,624,096	266,478
1970	8,190	60,406	3,607,592	440,487
1971	8,143	49,256	2,921,751	358,805
1972	11,435	47,905	3,270,185	285,980
1973	14,748	64,183	4,629,662	313,918
1974	15,117	64,285	4,967,752	328,620
1975	15,196	60,393	3,745,153	246,457
1976	16,446	52,110	3,486,841	212,018
1977	17,605	45,398	4,666,245	265,052
1978	17,397	52,060	8,208,728	471,847

TABLE 9.2  
TOTAL CIVIL AIRCRAFT PRODUCTION CALENDAR YEARS 1969-1978

Type	1969	1970	1971	1972	1973	1974	1975	1976	1977	1978
Total	13,600	8,190	8,143	10,523	14,748	15,117	15,196	16,446	17,605	17,397
Fixed-wing										
Transports	13,090	7,695	7,680	9,995	13,966	14,289	14,357	15,886	16,804	16,681
General aviation	509	311	230	230	295	263	314	238	180	225
	12,581	7,384	7,450	9,765	13,671	14,026	14,043	15,648	16,624	16,456
1-engine										
1- to 3-place	4,447	1,981	1,948	2,398	3,137	3,346	3,047	3,175	3,379	5,355
4-place and over	5,746	4,049	4,329	5,500	7,681	8,124	8,460	9,854	10,478	8,688
Multiengine	2,388	1,354	1,173	1,867	2,853	2,556	2,536	2,619	2,767	2,413
Rotocraft										
Transports	510	495	463	528	782	828	839	560	801	716
General Aviation	21	13	20	19	8	20	21	22	36	30
	489	482	443	509	774	808	818	538	765	686



TABLE 9.3

TOTAL CIVIL AIRCRAFT PRODUCTION BY TYPE  
CALENDAR YEARS 1969-1978

Calendar Year	Fixed-Wing						Roto- craft
	Total Aircraft	Total	1-Engine	2-Engine	3-Engine	4-Engine	
1969	13,541	13,031	10,134	2,608	115	174	510
1970	8,190	7,695	6,030	1,440	54	171	495
1971	8,143	7,680	6,277	1,170	33	200	463
1972	11,435	10,907	8,815	1,900	51	141	528
1973	14,748	13,966	10,818	2,887	188	73	782
1974	15,117	14,289	11,470	2,647	107	65	828
1975	15,196	14,357	11,507	2,622	159	69	839
1976	16,446	15,886	13,029	2,616	96	57	560
1977	17,605	16,804	13,857	2,790	87	70	801
1978	17,397	16,681	14,043	2,462	128	48	716

TABLE 9.4

TOTAL CIVIL ROTOCRAFT PRODUCTION, WEIGHT AND COST  
CALENDAR YEARS 1969-1978

Calendar Year	Number of Rotocraft	Airframe Weight (000 lbs.)	Average Unit Weight	Value of Complete Units (\$000)	Average Unit Cost
1969	510	879	1,724	74,040	145,176
1970	495	643	1,299	54,294	109,685
1971	463	833	1,799	78,775	170,140
1972	528	941	1,784	87,921	166,517
1973	782	1,122	1,435	123,830	158,350
1974	828	1,358	1,640	196,932	237,841
1975	839	2,732	3,256	316,528	377,268
1976	560	2,066	3,689	574,301	1,025,538
1977	801	1,505	1,879	502,784	627,695
1978	716	1,479	2,066	321,586	449,142

TABLE 9.5

FIXED-WING GENERAL AVIATION AIRCRAFT PRODUCTION,  
WEIGHT AND COST  
CALENDAR YEARS 1969-1978

Calendar Year	Number of Aircraft	Airframe Weight (000 lbs.)	Average Unit Weight	Value of Complete Units (\$000)	Average Unit Cost
1969	12,581	16,036	1,275	581,807	46,245
1970	7,384	9,408	1,274	339,887	46,030
1971	7,450	8,998	1,208	309,426	41,534
1972	10,677	12,750	1,194	536,783	50,275
1973	13,671	18,291	1,338	810,534	59,288
1974	14,026	18,497	1,319	884,166	63,038
1975	14,043	21,322	1,518	991,509	70,605
1976	15,648	22,413	1,432	1,412,675	90,278
1977	16,624	25,516	1,535	1,390,939	83,671
1978	16,456	25,930	1,576	3,219,880	195,660

TABLE 9.6

TOTAL GENERAL AVIATION AIRCRAFT PRODUCTION AND WEIGHT  
CALENDAR YEAR 1978

Aircraft Category	Units Produced		Airframe Weight		Average Unit Weight
	Number	Percent of Total	(000 lbs.)	Percent of Total	
Total	<u>17,142</u>	<u>100.0</u>	<u>29,423</u>	<u>100.0</u>	<u>1,732</u>
Piston engine--total	<u>16,112</u>	<u>94.0</u>	<u>24,055</u>	<u>81.8</u>	<u>1,493</u>
1-engine, 1-3 place	5,355	31.2	5,139	17.5	960
1-engine, 4 place and over	8,589	50.1	11,622	39.5	1,353
Multiengine, 4 place and over	1,938	11.3	7,090	24.1	3,658
Rotocraft	230	1.3	204	0.7	887
Turbine engine--total	<u>1,030</u>	<u>6.0</u>	<u>5,368</u>	<u>18.2</u>	<u>5,365</u>
1-engine, 4 place and over	99	0.6	1,650	5.6	16,667
Multiengine, 4 place and over	475	2.8	2,763	9.4	5,817
Rotocraft	456	2.6	955	3.2	2,094

TABLE 9.7

FIXED-WING TRANSPORT-TYPE AIRCRAFT PRODUCTION,  
WEIGHT AND COST  
CALENDAR YEARS 1969-1978

Calendar Year	Number of Aircraft	Airframe Weight (000 lbs.)	Average Unit Weight	Value of Complete Units (\$000)	Average Unit Cost
1969	509	44,310	87,053	2,978,249	5,851,177
1970	311	50,355	161,913	3,213,411	10,332,511
1971	230	39,425	171,413	2,582,611	11,228,743
1972	230	34,214	148,757	2,645,481	11,502,091
1973	295	44,770	151,763	3,695,298	12,526,434
1974	263	44,430	168,935	3,886,654	14,778,152
1975	314	36,339	115,279	2,437,153	7,776,634
1976	238	27,632	116,101	1,499,865	6,301,954
1977	180	18,377	102,094	2,772,522	15,402,900
1978	225	24,651	109,561	4,667,262	20,743,386

TABLE 9.8

TOTAL TRANSPORT-TYPE AIRCRAFT PRODUCTION  
BY TYPE AND WEIGHT  
CALENDAR YEAR 1978

Aircraft Category	Units Produced		Airframe Weight		Average Unit Weight
	Number	Percent of Total	(000 lbs.)	Percent of Total	
Total	<u>255</u>	<u>100.0</u>	<u>24,971</u>	<u>100.0</u>	<u>97,925</u>
Fixed-wing--total	<u>225</u>	<u>88.2</u>	<u>24,651</u>	<u>98.7</u>	<u>109,560</u>
Turbojet	114	44.7	16,269	65.2	142,710
Turboprop	111	43.5	8,382	33.5	75,514
Rotocraft--total	<u>30</u>	<u>11.8</u>	<u>320</u>	<u>1.3</u>	<u>10,667</u>
Piston	---	---	---	---	---
Turbine	30	11.8	320	1.3	10,667



TABLE 9.9

VALUE OF BACKLOG ORDERS, NET NEW ORDERS, AND NET SALES  
OF COMPLETE AIRCRAFT, AIRCRAFT ENGINES, AND PROPELLERS:  
CALENDAR YEARS 1969 THROUGH 1978

(Millions of Dollars)

Year	Net New Orders During Year*	Net Sales During Year	Backlog December 31
1969	22,005	24,648	28,297
1970	21,161	24,752	24,705
1971	21,553	21,679	24,579
1972	23,570	21,289	26,860
1973	27,044	24,305	29,661
1974	32,879	26,768	35,770
1975	28,815	29,205	35,126
1976	35,991	30,363	37,682
1977	38,922	33,315	45,309
1978	49,937	37,471	57,775

\*New order received during the year less terminations  
during the year.

Source: Current Industrial Reports: Backlog of Orders  
for Aerospace Companies.

TABLE 9.10

## AVERAGE EMPLOYMENT AND EARNINGS IN U.S. AIRCRAFT INDUSTRY: CALENDAR YEARS 1971 THROUGH 1978

Industry	1978	1977	1976	1975	1974	1973	1972	1971
<u>Average monthly employees (000)</u>								
Aircraft and parts	529.3	476.9	484.5	514.4	532.1	514.0	501.1	538.1
Aircraft	304.4	243.8	262.0	275.0	289.3	274.6	272.2	290.7
Engines and parts	130.9	137.6	131.9	139.6	146.2	144.8	138.5	153.4
Other aircraft parts and equipment	94.0	95.5	90.6	99.8	96.5	94.5	90.5	93.9
<u>Average weekly hours</u>								
Aircraft and parts	42.2	42.8	41.7	41.1	40.5	41.5	41.6	40.7
Aircraft	42.1	42.7	41.6	40.4	39.4	41.1	41.7	41.0
Engines and parts	41.7	42.0	41.0	41.4	41.2	41.8	41.1	39.8
Other aircraft parts and equipment	43.1	44.1	42.7	41.9	42.1	42.1	41.9	41.2
<u>Average weekly earnings</u>								
Aircraft and parts	318.19	307.73	278.56	246.19	218.70	207.50	193.44	175.82
Aircraft	324.17	310.43	283.30	250.48	219.46	210.84	197.66	178.76
Engines and parts	325.26	315.00	281.26	249.64	223.72	211.09	193.17	173.53
Other aircraft parts and equipment	295.24	295.03	263.89	213.29	210.92	196.19	183.10	171.80
<u>Average hourly earnings</u>								
Aircraft and parts	7.54	7.19	6.68	5.99	5.40	5.00	4.65	4.32
Aircraft	7.70	7.27	6.81	6.20	5.57	5.13	4.74	4.36
Engines and parts	7.80	7.50	6.86	6.03	5.43	5.05	4.70	4.36
Other aircraft parts and equipment	6.85	6.69	6.18	5.52	5.01	4.66	4.37	4.17

TABLE 9.11

UNITED STATES EXPORTS OF AERONAUTICAL PRODUCTS  
CALENDAR YEAR 1978

Item	Number	Value (\$000)
Aircraft, parts, and accessories--total	N/A	<u>9,746,630</u>
Commercial and civilian aircraft--total	<u>4,401</u>	<u>3,616,077</u>
Multiple engines, new:		
Less than 4,400 pounds*	455	62,184
4,400 to 10,000 pounds*	339	239,800
10,000 to 33,000 pounds*	39	90,793
33,000 pounds and over:*		
Passenger transports	99	2,102,110
Cargo transports	3	142,376
Other, including passenger/cargo	8	304,972
Single engine, new	2,640	102,583
Rotary wing, new*		
Under 2,200 pounds*	243	41,480
2,200 pounds and over*	125	114,244
Aircraft, used, rebuilt, modified or converted, including aircraft changed from military to non-military type	449	388,469
Aircraft, new, not elsewhere classified	--	27,066
Internal combustion aircraft engines, new--total		<u>30,039</u>
Under 500 horsepower	2,148	16,488
500 horsepower and over	157	13,551
Aircraft engines, used	1,388	<u>16,359</u>
Aircraft components, parts, accessories--total	N/A	<u>6,084,155</u>
Electronic navigational aids	N/A	280,935
Aircraft flight and other instruments	N/A	85,597
Other aircraft components, parts and accessories	N/A	5,717,623

N/A - not applicable.

\*Empty aircraft weight.



## X. AIRCRAFT ACCIDENTS

The data presented in this chapter were obtained from the following sources:

Accidents: National Transportation Safety Board.

Air Carrier Miles Flown: National Transportation Safety Board.

Estimated General Aviation Hours and Miles Flown: Federal Aviation Administration.

As defined by the National Transportation Safety Board, an aircraft accident is: "an occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, and in which any person suffers death or serious injury as a result of being in or upon the aircraft or by direct contact with the aircraft or anything attached thereto, or in which the aircraft receives substantial damage."

Fatal injury means any injury which results in death within 7 days of the accident.

Operator means any person who causes or authorizes the operation of an aircraft, such as the owner, lessee, or bailee of an aircraft.

Serious injury means any injury which (1) requires hospitalization for more than 48 hours, commencing within 7 days from the date the injury was received; (2) results in a fracture of any bone (except simple fractures of fingers, toes, or nose); (3) involves lacerations which cause severe hemorrhages, nerve, muscle, or tendon damage; (4) involves injury to any internal organ; or (5) involves second- or third-degree burns, or any burns affecting more than 5 percent of the body surface.

### Substantial damage:

(1) Except as provided in subparagraph (2) of this paragraph, substantial damage means damage or structural failure which adversely affects the structural strength, performance, or flight characteristics of the aircraft, and which would normally require major repair or replacement of the affected component.

(2) Engine failure, damage limited to an engine, bent fairings or cowlings, dented skin, small puncture holes in the skin or fabric, ground damage to rotor or propeller blades, damage to landing gear, wheels, tires, flaps, engine accessories, brakes or wingtips are not considered substantial damage for the purpose of this part.

Commencing in 1968, general aviation accidents cannot be compared with earlier years because of an amendment to the definition of substantial damage.

Prior to January 1, 1968, the definition of substantial damage was:

(1) Except as provided in subparagraph (ii) of this paragraph:

(i) Substantial damage in aircraft of 12,500 pounds maximum certified takeoff weight or less means damage or structural failure reasonable estimated to cost \$300 or more to repair.

(ii) Substantial damage in aircraft of more than 12,500 pounds maximum certified takeoff weight means damage or structural failure which adversely affects the structural strength, performance, or flight characteristics of the aircraft, and which would normally require major repairs or replacement of the affected component.

(2) Engine failure, damage limited to an engine, bent fairings, or cowling, dented skin, small puncture holes in the skin or fabric, taxiing damage to propeller blades, damage to tires, engine accessories, brakes or wingtips are not considered substantial damage for the purpose of this part.

More detailed accident data may be obtained from the National Transportation Safety Board, Bureau of Technology.

TABLE 10.1

AIRCRAFT ACCIDENTS, FATALITIES AND FATALITY RATE --  
U.S. AIR CARRIER OPERATIONS: 1978

Air Carrier and Operation	Number of Accidents		Number of Fatalities
	Total	Fatal	
Total	<u>25</u>	<u>6</u>	<u>163</u>
Certificated Route Air Carriers--all operations	22	5	19
Supplemental Air Carriers--all operations	2	---	---
Commercial--all operations	1	1	144
Passenger Operations	22	5	160
Certificated Route Air Carriers scheduled			
Passenger Service	20	4	16
Domestic Passenger service	18	4	16
International/territorial passenger service	2	---	---
Supplemental air carrier passenger service, civil and military	1	---	---
Commercial	1	1	144

NOTE: Beginning in 1975, accidents involving commercial operators of large aircraft are included. Nonrevenue miles of the supplemental air carriers are not reported.

SOURCE: National Transportation Safety Board.



TABLE 10.2

FATAL ACCIDENTS, FATALITIES -- U.S. AIR CARRIER ALL OPERATIONS: 1977 AND 1978

Location	Operator	Date	Service	Aircraft	Fatalities			Total Aboard	Reported Type of Accident
					Total	Passenger	Crew		
<b>Total</b>					<u>163</u>	<u>141</u>	<u>12</u>	<u>10</u>	<u>767</u>
Certificated Route Air Carriers--total Pueblo, CO Los Angeles, CA Pensacola, FL Atlanta, GA Portland, OR	Frontier Airlines	1/18/78	Trng	DHC-6	19	13	5	1	Crashed during Initial Climb Crashed during Rejected Takeoff Crashed during Final Approach Ground Crewman Fatally Injured Crashed during Landing
	Continental Airlines	3/1/78	Psg	DC-10	3	0	3	0	
	National Airlines	5/8/78	Psg	B-727	2	2	0	0	
	Delta Airlines	6/11/78	Psg	L-1011	3	3	0	0	
	United Airlines	12/28/78	Psg	DC-8	1	0	0	1	
					10	8	2	0	
Commercial Operators of Large Aircraft--total San Diego, CA	Pacific Southwest Airlines	9/25/78	Psg	B-727	144	128	7	9	Midair Collision
					142	128	7	7	
				Cessna 172	2	---	---	2	
<b>Total</b>					<u>656</u>	<u>382</u>	<u>17</u>	<u>257</u>	<u>760</u>
Certificated Route Air Carrier--total Santa Cruz de Tenerife, Canary Islands New Hope, GA New York, NY Kayesville, UT	Pan American World Airways		Psg	B-747	653	382	14	257	Ground Collision, Pan Am taxiing and KLM takeoff run.
	Royal Dutch Airlines	3/27/77	Psg	B-747	327	318	9	---	
	Southern Airways	4/4/77	Psg	DC-9	248	---	---	248	Crashed Enroute Roll over while idling rotors Collided with mountain
	New York Airways	5/16/77	Psg	S-61	70	60	2	8	
	United Airlines	12/18/77	Crg	DC-8	5	4	---	1	
					3	---	3	---	
Commercial Operators of Large Aircraft--total St. Louis, Mo	Fleming International Airways	7/6/77	Crg	L-188	3	---	3	---	Crashed during takeoff
					3	---	3	---	

TABLE 10.3  
AIRCRAFT ACCIDENTS, ACCIDENT RATES, AND FATALITIES  
U.S. AIR CARRIER OPERATIONS: 1969-1978\*

Year	Number of Accidents		Aircraft Miles Flown (000)(a)	Accident Rate Per Million Aircraft Miles Flown		Fatalities		
	Total	Fatal		Total Accidents	Fatal Accidents	Total	Passengers	Crew and Others
1969	63	10(b)	2,736,596	0.023	0.003	158	132	26
1970	55	8	2,684,552	0.020	0.003	146	118	28
1971	48	8(b)	2,660,731	0.018	0.002	203	174	29
1972	50	8	2,619,043	0.019	0.003	190	160	30
1973	43	9	2,646,669	0.016	0.003	227	200	27
1974	47	9	2,464,295	0.019	0.003	467	421	46
1975(c)	45	3	2,477,764	0.018	0.001	124	113	11
1976	28	4	2,568,113	0.011	0.002	45	39	6
1977	26	5	2,684,072	0.010	0.002	656	382	274
1978p	25	6	2,797,000	0.009	0.002	163	141	22

\* Includes Certificated Route, Supplemental, and Commercial Operators of Large Aircraft.

(a) Nonrevenue miles of the supplemental air carriers are not reported.

(b) Includes midair collision accidents nonfatal to air carrier occupants. Number of accidents excluded from fatal accident rates (1969-1, 1971-2).

(c) Beginning in 1975, figures include accidents involving commercial operators of large aircraft.

NOTE: Sabotage accident (9/8/74) is included in all computations except rates. In 1977, Fatalities (Other) includes 248 on aircraft of foreign registry.

SOURCE: National Transportation Safety Board.

p - preliminary.

TABLE 10.4  
AIRCRAFT ACCIDENTS, ACCIDENT RATES, AND FATALITIES  
U.S. CERTIFICATED ROUTE AIR CARRIERS: 1969-1978

Year	Number of Accidents		Aircraft Miles Flown (000)	Accident Rate Aircraft Miles Flown Per Million		Fatalities		
	Total	Fatal		Total Accidents	Fatal Accidents	Total	Passengers	Crew and Others
1969	61	10(a)	2,620,803	0.023	0.003	158	132	26
1970	49	5	2,591,706	0.019	0.002	85	72	13
1971	47	8(a)	2,557,968	0.018	0.002	203	174	29
1972	48	8	2,526,021	0.019	0.003	190	160	30
1973	40	8	2,555,732	0.016	0.003	221	197	24
1974	45	8	2,384,933	0.018	0.003	463	420	43
1975	36	2	2,357,425	0.015	0.001	122	113	9
1976	25	3	2,448,413	0.010	0.001	42	39	3
1977	21	4	2,556,080	0.008	0.002	396	382	14
1978p	22	5	2,625,000	0.008	0.002	19	13	6

(a) Includes midair collision accidents nonfatal to air carrier occupants. Number of accidents excluded from fatal accident rates (1969-1, 1971-2).

NOTE: Sabotage accident (9/8/74) is included in all computations except rates. In 1977, Fatalities (Other) includes 248 on aircraft of foreign registry.

SOURCE: National Transportation Safety Board.

p - preliminary.



TABLE 10.5  
AIRCRAFT ACCIDENTS, FATALITIES, AND FATALITY RATE--U.S. CERTIFICATED ROUTE AIR CARRIER  
SCHEDULED DOMESTIC AND INTERNATIONAL PASSENGER SERVICE: 1969-1978

Year	Aircraft Accidents		Fatalities			Passengers Carried	Passenger-Miles Flown (000)	Passenger Fatality Rate Per 100 Million Passenger-Miles
	Total	Fatal	Total	Passenger	Crew and Other			
1969	48	7	152	132	20	159,213,414	132,161,593	0.100
1970	39	2	3	2	1	171,697,097	139,157,806	0.001
1971	41	6(a)	194	174	20	173,664,737	145,678,876	0.119
1972	43	7	186	160	26	188,938,932	159,722,015	0.100
1973	32	6	217	197	20	202,207,000	171,436,549	0.115
1974	42	7	460	420	40	207,449,006	173,349,894	0.197
1975	28	2	122	113	9	205,059,571	174,173,138	0.065
1976	21	2	38	36	2	223,313,131	190,915,721	0.019
1977	17	2	75	64	11	240,326,516	206,205,410	0.031
1978p	20	4	16	13	3	268,000,000	232,900,000	0.006

(a) Includes 2 midair collisions that were nonfatal to air carrier occupants.

NOTE: Passenger deaths occurring in sabotage accidents are included in the passenger fatality column, but are excluded in the computation of fatality rates (1974-79 passengers).

SOURCE: National Transportation Safety Board.

p - preliminary.

TABLE 10.6  
AIRCRAFT ACCIDENTS, FATALITIES AND FATALITY RATE--U.S. CERTIFICATED ROUTE AIR CARRIER  
SCHEDULED DOMESTIC PASSENGER SERVICE: 1969-1978

Year	Aircraft Accidents		Fatalities			Passengers Carried	Passenger-Miles Flown (000)	Passenger Fatality Rate Per 100 Million Passenger-Miles
	Total	Fatal	Total	Passenger	Crew and Other			
1969	36	7	152	132	20	142,364,035	100,815,837	0.131
1970	32	1	1	---	1	155,097,644	109,183,837	---
1971	33	6(a)	194	174	20	156,097,403	113,240,603	0.154
1972	37	6	185	160	25	169,931,415	123,775,960	0.129
1973	27	4	138	128	10	183,271,000	133,733,181	0.096
1974	31	3	168	158	10	189,723,697	137,657,951	0.115
1975	21	2	122	113	9	188,743,983	140,299,953	0.081
1976	17	1	1	1	---	206,274,060	154,322,683	0.001
1977	15	2	75	64	11	222,283,516	166,424,934	0.038
1978p	18	4	16	13	3	248,000,000	188,000,000	0.007

(a) Includes 2 midair collisions that were nonfatal to air carrier occupants.

SOURCE: National Transportation Safety Board.

p - preliminary.

TABLE 10.7  
ACCIDENTS, FATALITIES AND FATALITY RATE--U.S. CERTIFICATED ROUTE AIR CARRIER  
SCHEDULED INTERNATIONAL PASSENGER SERVICE: 1969-1978

Year	Accidents		Fatalities			Passengers Carried	Passenger-Miles Flown (000)	Passenger Fatality Rate Per 100 Million Passenger-Miles
	Total	Fatal	Total	Passenger	Crew and Other			
1969	12	---	---	---	---	16,849,379	31,345,756	---
1970	7	1	2	2	---	16,599,453	29,973,969	0.007
1971	8	---	---	---	---	17,567,334	32,438,273	---
1972	6	1	1	---	1	19,007,517	35,946,055	---
1973	5	2	79	69	10	18,936,000	37,703,368	0.183
1974	12	4	292	262	30	17,725,309	35,691,093	0.513
1975	7	---	---	---	---	16,315,588	33,873,185	---
1976	4	1	37	35	2	17,039,131	36,593,038	0.096
1977	3	---	---	---	---	18,043,000	39,780,476	---
1978p	2	---	---	---	---	20,000,000	44,900,000	---

NOTE: Passenger deaths occurring in sabotage accidents are included in passenger fatality column but excluded in the computation of passenger fatality rates (1974-79 passengers).

SOURCE: National Transportation Safety Board.

p - preliminary.



TABLE 10.8  
ACCIDENTS, ACCIDENT RATES, AND FATALITIES--U.S. SUPPLEMENTAL AIR CARRIERS  
ALL OPERATIONS: 1969-1978

Year	Number of Accidents		Aircraft Miles Flown (000)(a)	Accident Rate Per Million Aircraft Miles Flown		Fatalities		
	Total	Fatal		Total Accidents	Fatal Accidents	Total	Passengers	Crew and Others
1969	2	--	115,793	0.017	--	--	--	--
1970	6	3	92,846	0.065	0.032	61	46	15
1971	1	--	102,763	0.010	--	--	--	--
1972	2	--	93,022	0.022	--	--	--	--
1973	3	1	90,937	0.033	0.011	6	3	3
1974	2	1	79,363	0.025	0.013	4	1	3
1975	2	--	65,476	0.031	--	--	--	--
1976	1	--	62,640	0.016	--	--	--	--
1977	2	--	67,699	0.030	--	--	--	--
1978p	2	--	79,500	0.025	--	--	--	--

(a) Nonrevenue miles not reported.

SOURCE: National Transportation Safety Board.

p - preliminary.

TABLE 10.9  
AIRCRAFT ACCIDENTS, FATALITIES AND FATALITY RATE--U.S. SUPPLEMENTAL AIR CARRIER  
CIVIL AND MILITARY OPERATIONS: 1969-1978

Year	Accidents		Fatalities		Passengers Carried	Passenger-Miles Flown (000)	Passenger Fatality Rate Per 100 Million Passenger-Miles
	Total	Fatal	Total	Passenger			
1969	---	---	---	---	3,705,975	11,134,706	---
1970	2	1	47	46	2,950,224	10,288,728	0.447
1971	---	---	---	---	3,295,803	10,573,646	---
1972	---	---	---	---	3,473,599	10,049,683	---
1973	1	---	---	---	3,569,912	11,790,513	---
1974	1	---	---	---	3,194,463	10,862,449	---
1975	1	---	---	---	2,352,423	8,759,279	---
1976	1	---	---	---	2,191,661	8,199,053	---
1977	2	---	---	---	2,793,761	9,983,404	---
1978(p)	1	---	---	---	3,100,000	10,400,000	---

SOURCE: National Transportation Safety Board.

(p) - preliminary.

TABLE 10.10

**AIRCRAFT ACCIDENTS, FATALITIES AND ACCIDENT RATES--  
U.S. GENERAL AVIATION FLYING: 1969-1978**

Year	Accidents		Fatalities	Aircraft Hours Flown (000)	Accident Rates 100,000 Aircraft Hours	
	Total	Fatal			Total	Fatal
1969	4,767	647	1,495(b)	25,351	18.8	2.55
1970	4,712	641(a)	1,310	26,030	18.1	2.46
1971	4,648	661	1,355	25,512	18.2	2.59
1972	4,256	695(a)	1,426(b)	26,974	15.8	2.57
1973	4,255	723(a)	1,412	29,974	14.2	2.41
1974	4,425	729(a)	1,438	31,413	14.1	2.31
1975	4,237	675(a)	1,345	32,024	13.2	2.10
1976	4,193	695	1,320	33,922	12.3	2.04
1977	4,286	702	1,436	35,792	12.0	1.96
1978 <sub>p</sub>	4,609	795	1,690(b)	36,600	12.6	2.17

(a) Suicide/sabotage accidents are included in all computations except for rates (1970-1, 1972-3, 1973-2, 1974-2, 1975-2, 1976-4, 1977-1).

(b) Includes air carrier fatalities (1969-82, 1972-5, 1978-142) when in collision with general aviation aircraft.

SOURCE: National Transportation Safety Board.

p - preliminary.



TABLE 10.11

COMPARATIVE ACCIDENT DATA: 1969 THROUGH 1978  
(PASSENGER FATALITIES PER 100 MILLION PASSENGER-MILES)

	Passenger Automobiles and Taxis	Buses	Railroad Passenger Trains	Domestic Scheduled Air Transport Planes
1969 . . . . .	2.30	.19	.07	.13
1970 . . . . .	2.10	.19	.09	.00
1971 . . . . .	1.90	.19	.24	.15
1972 . . . . .	1.90	.19	.53	.13
1973 . . . . .	1.70	.24(r)	.07	.10
1974 . . . . .	1.50(r)	.21	.07	.12
1975 . . . . .	1.40	.15	.08	.08
1976 . . . . .	1.34(r)	.17(r)	.05	.003
1977 . . . . .	1.33	.13	.05	.04
1978 . . . . .	1.30	.17	.13	.01

Source: Motor vehicle (automobiles, taxis, and buses) and railroad passenger train data from the National Safety Council. Domestic scheduled air transport data from the National Transportation Safety Board.

(r): Revised

TABLE 10.12

**AIRCRAFT ACCIDENTS, FATALITIES AND ACCIDENT RATES--  
U.S. AIR TAXI: 1969 THROUGH 1978  
ALL OPERATIONS**

Year	Accidents		Fatalities	Aircraft Hours Flown*	Accident Rates per 100,000 Aircraft Hours Flown	
	Total	Fatal			Total	Fatal
1969	207	29	142	2,238,000	9.25	1.30
1970	190	38	100	2,481,000	7.66	1.53
1971	148	33	109	2,225,000	6.65	1.48
1972	147	42	121	2,555,000	5.75	1.64
1973	165	44	113	3,066,000	5.38	1.44
1974	191	40	111	3,640,000	5.25	1.10
1975	203	37	98	3,688,000	5.50	1.00
1976	188	47	133	3,947,000	4.76	1.19
1977	217	44	155	4,207,000	5.16	1.05
1978(p)	248	54	165	4,417,000(a)	5.61	1.22

\*Aircraft hours estimated by FAA.

(a)Aircraft hours estimated by NTSB.

SOURCE: National Transportation Safety Board.

(p)preliminary.

## GLOSSARY

Active Aircraft--All legally registered civil aircraft which flew one or more hours.

ADF--Automatic Direction Finder.

Aerial Application--See Primary Use.

Air Carriers--The commercial system of air transportation, consisting of the certificated route air carriers, air taxis (including commuters), supplemental air carriers, commercial operators of large aircraft, and air travel clubs.

- Certificated route air carrier--An air carrier holding a Certificate of Public Convenience and Necessity issued by the Civil Aeronautics Board authorizing the performance of scheduled service over specified routes, and a limited amount of nonscheduled service.
- Air taxi--A classification of air carriers which directly engage in the air transportation of persons, property, mail, or in any combination of such transportation and which do not directly or indirectly utilize large aircraft (over 30 seats or a maximum payload capacity of more than 71,500 pounds) and do not hold a Certificate of Public Convenience and Necessity or economic authority issued by the Civil Aeronautics Board.
- Commuter air carrier--an air taxi operator which performs at least five round trips per week between two or more points and publishes flight schedules which specify the times, days of the weeks and plans between which such flights are performed.
- Supplemental air carrier--One of a class of air carriers now holding Certificates of Public Convenience and Necessity issued by the Civil Aeronautics Board, authorizing them to perform passenger and cargo charter services supplementing the scheduled service of the certificated route air carriers. Both international and domestic charter operations are for a temporary period. The authority of supplemental air carriers to engage in military charters is of an indefinite period. In addition, they can perform on an emergency basis, as may be authorized by the Civil Aeronautics Board, scheduled operations including the transportation of individually ticketed passengers and individually waybilled cargo.
- Commercial operator--a person who for compensation or hire engages in the carriage of aircraft in air commerce of persons or property other than as an air carrier or foreign air carrier.
- Commercial operator of large aircraft--commercial operator operating aircraft of more than 12,500 pounds maximum certificated takeoff weight.
- Air Travel Club--a person who engages in the carriage by airplanes of persons who are required to qualify for that carriage by payment of an assessment, dues, membership fee, or other similar types of remittance.



Aircraft Contacted--Aircraft with which the flight service station (FSS) have established radio communications contact. On count is made for each en route, landing, or departing aircraft contacted by a FSS regardless of the number of contacts made with an individual aircraft during the same flight. A flight contacting five FSS's would be counted as five aircraft contacted.

Aircraft Handled--See IFR Aircraft Handled.

Aircraft Operation--The airborne movement of aircraft in controlled or noncontrolled airport terminal areas and about given en route fixes or at other points where counts can be made. There are two types of operations--local and itinerant.

- Local operations are performed by aircraft which:
  - (a) Operate in the local traffic pattern or within sight of the airport.
  - (b) Are known to be departing for, or arriving from, flight in local practice areas within a 20-mile radius of the airport.
  - (c) Execute simulated instrument approaches or low passes at the airport.
- Itinerant operations are all aircraft operations other than local operations.

Aircraft Type--A term used in this publication in grouping aircraft by basic configuration--fixed-wing, rotorcraft, glider, dirigible, and balloon.

Air Defense Identification Zone--The area of airspace over land or water within which the ready identification, the location, and the control of aircraft are required in the interest of national security.

Airline Transport Pilot--See Pilot.

Airman--A pilot, mechanic, or other licensed aviation technician.

Airman Certificate--A document issued by the Administrator of the Federal Aviation Administration certifying that the holder complies with the regulations governing the capacity in which the certificate authorizes the holder to act as an airman in connection with aircraft.

Airport--An area of land or water that is used or intended to be used for the landing and takeoff of aircraft, and includes its buildings and facilities, if any.

Airport Advisory Service (AAS)--A service provided by flight service stations at airports not served by a control tower. This service consists of providing information to landing and departing aircraft concerning wind direction and velocity, favored runway, altimeter setting, pertinent known traffic, pertinent known field conditions, airport taxi routes and traffic patterns, and authorized instrument approach procedures.

Airport Surveillance Radar (ASR)--Radar providing position of aircraft by azimuth and range data. It does not provide elevation data. It is designed for range coverage up to 60 nautical miles and is used by terminal area air traffic control.

Airport Traffic--Aircraft operating in the air or on an airport surface exclusive of loading ramps and parking areas.

Airport Traffic Control Service--Air traffic control service provided by an airport traffic control tower for aircraft operating on the movement area, and in the vicinity of an airport.

Airport Traffic Control Tower (ATCT)--A central operations facility in the terminal air traffic control system, consisting of a tower cab structure, including an associated IFR room if radar equipped, using air/ground communications and/or radar, visual signaling and other devices, to provide safe and expeditious movement of terminal air traffic.

Air Route Traffic Control Center (ARTCC)--A facility established to provide air traffic control service to aircraft operating on IFR flight plans within controlled airspace, and principally during the en route phase of flight.

Air Taxi--See Air Carrier and Primary Use.

Air Traffic Control (ATC)--A service operated by appropriate authority to promote the safe, orderly, and expeditious flow of air traffic.

Air Traffic Control Facility--A facility in the U.S., its possessions and territories, and in foreign countries especially established by international agreement, that has the capability to provide air traffic control services to the aeronautical public.

Air Traffic Hub--Air traffic hubs are not airports; they are the cities and Standard Metropolitan Statistical Areas requiring aviation services. Communities fall into four classes as determined by each community's percentage of the total enplaned passengers in scheduled service of the fixed-wing operations of the domestic certificated route air carriers in the 50 States, the District of Columbia, and other U.S. areas designated by the Federal Aviation Administration.

- Large air traffic hub--a community enplaning 1.00 percent or more of the total enplaned passengers.
- Medium air traffic hub--a community enplaning from 0.25 to 0.99 percent of the total enplaned passengers.
- Small air traffic hub--a community enplaning from 0.05 to 0.24 percent of the total enplaned passengers.
- Nonhub--a community enplaning less than 0.05 percent of the total enplaned passengers.

Air Travel Club--See Air Carrier.

Alaskan Carrier--A subset of the certificated route air carriers which includes Alaska Airlines, Kodiak-Western Alaska Airlines, Munz Northern Airlines, Kodiak-Aleutian Airways, and Wien Air Alaska.

All-Cargo Carrier--One of a class of air carriers holding temporary Certificates of Public Convenience and Necessity, issued by the Civil Aeronautics Board, authorizing the performance of scheduled air freight, express, and mail transportation over specified routes, as well as the conduct of nonscheduled operations, which may include passengers. All cargo carriers include Airlift International, Flying Tiger Line and Seaboard World Airways.

Altitude Encoding (Automatic Altitude Reporting)--An aircraft altitude transmitted via the Mode C transponder feature that is visually displayed in 100 foot increments on the ground radar scope having readout capability.

American Flag Carrier--See U.S. Flag Carrier.

Approach Control Facility--A terminal area traffic control facility providing approach control service.

Approach Control Service--Air traffic control service provided by an approach control facility for arriving and departing aircraft and, on occasion, tower en route control service.

Area Navigation (RNAV)--A method of navigation that permits aircraft operations on any desired course within the coverage of station-referenced navigation signals or within the limits of self-contained system capability.

ARSR--Air Route Surveillance Radar.

ASR--See Airport Surveillance Radar.

ARTCC--Air Route Traffic Control Center.

Automatic Direction Finder (ADF)--An aircraft radio navigation system which senses and indicates the direction to a nondirectional radio beacon ground transmitter. Direction is indicated to the pilot as a magnetic bearing or as a relative bearing to the longitudinal axis of the aircraft.

Automatic Pilot--An aircraft can be controlled about the roll, pitch, and yaw axis by use of an automatic pilot. Information from VOR, ILS, MLS, and other navigation aids can be coupled to the automatic pilot for en route and approach flights.



Business Transportation--See Primary Use.

CAB--Civil Aeronautics Board.

Certificated Route Air Carrier--See Air Carrier.

Combined Station Tower--A combined facility (see Airport Traffic Control Tower and Flight Service Station).

Commercial Operator--See Air Carrier.

Commercial Pilot--See Pilot.

Commuter Air Carrier--See Air Carrier.

Controlled Airspace--Airspace control area designated as a continental control area, control zone, terminal control area, or transition area, within which some or all aircraft may be subject to air traffic control.

CS/T--Combined Station/Tower.

Defense Visual Flight Rules (DVFR)--A flight within an Air Defense Identification Zone conducted under the visual flight rules in Federal Aviation Regulation, Part 99.

Distance Measuring Equipment (DME)--Airborne and ground equipment used to measure, in nautical miles, the slant range distance of an aircraft from the DME navigational aid.

DME--Distance Measuring Equipment.

Domestic Operations--In general, operations within and between the 50 States, and the District of Columbia. Includes domestic operations of the certificated trunk carriers, and the local service, regional helicopter, Alaskan, Hawaiian, domestic all-cargo, and other carriers.

DVFR--Defense Visual Flight Rules.

Executive Transportation--See Primary Use.

Express (Air)--Property transported by air under published air express tariffs filed with the Civil Aeronautics Board.

FAR--Federal Aviation Regulation.

Flight Advisory Service--Advice and information provided by a facility to assist pilots in the safe conduct of flight and aircraft movement.

Flight Plan--Specified information, relating to the intended flight of an aircraft, that is filed orally or in writing with air traffic control.

Flight Service Station (FSS)--A central operations facility in the national flight advisory system utilizing data interchange facilities for the collection and dissemination of Notices to Airmen, weather, administrative data; and providing preflight and inflight advisory service, and other services to pilots, via air/ground communications facilities.

Foreign Flag Air Carrier--An air carrier other than a U.S. flag air carrier engaged in international air transportation (see also U.S. Flag Carrier).

Foreign Mail--Mail transported outside the United States by U.S. flag carriers for a foreign government.

FSS--Flight Service Station.

General Aviation--That portion of civil aviation which encompasses all facets of aviation except air carriers holding a Certificate of Convenience and Necessity from the Civil Aeronautics Board, and commercial operators of large aircraft.

Glide Slope--See Instrument Landing System.

Hawaiian Carrier--A subset of the certificated route air carriers which includes Aloha Airlines and Hawaiian Airlines.

Heliport--An area of land, water, or any structure used or intended to be used for the landing and takeoff of helicopters.

Hub--See Air Traffic Hub.

ICAO--International Civil Aviation Organization (Montreal, Canada).

IFR--Instrument Flight Rules.

IFR Aircraft Handled--The number of IFR departures multiplied by two plus the number of IFR overs. This definition assumes that the number of departures (acceptances, extensions, and originations of IFR flight plans) is equal to the number of landings (IFR flight plans closed).

IFR Departure--An IFR departure includes IFR flights:

1. Originating in a center's area;
2. Accepted by the center under SOLE EN ROUTE clearance procedures;
3. Extended by the center.

IFR Over--An IFR flight that originates outside the ARTCC area and passes through the area without landing.

IFSS--International Flight Service Station.

ILS--Instrument Landing System.

Inactive Aircraft--All legally registered civil aircraft which flew zero hours.

Industrial/Special--See Primary Use.

Instructional Flying--See Primary Use.

Instrument Approach--An approach to an airport, with intent to land, by an aircraft flying in accordance with an IFR flight plan, when the visibility is less than 3 miles and/or when the ceiling is at or below the minimum initial altitude.

Instrument Flight Rules (IFR)--Rules governing the procedures for conducting instrument flight. Also a term used by pilots and controllers to indicate type of flight plan.

Instrument Landing System (ILS)--A precision instrument approach system which normally consists of the following electronic and visual aids:

- Localizer--Provides course guidance to the runway.
- Glide Slope--Provides vertical guidance during approach.
- Marker Beacon--Beacon ground facility which transmits a vertical cone shaped signal. Pilots have aural and visual indications when passing over a marker station, indicating distance to the end of the runway and that aircraft is in approach path.

Instrument Operation--An aircraft operation in accordance with an IFR flight plan or an operation where IFR separation between aircraft is provided by a terminal control facility or air route traffic control center.

International Flight Service Station (IFSS)--A central operations facility in the flight advisory system, staffed and equipped to control aeronautical point-to-point telecommunications, and air/ground telecommunications with pilots operating over international territory or waters, providing flight plan following, weather information, search and rescue action, and other flight assistance operations.

International Operations--In general, operations outside the territory of the U.S., including operations between the U.S. and foreign countries, and the U.S. and its territories or possessions. Includes both the combination passenger/cargo carrier and the all-cargo carriers engaged in international and territorial operations.



Itinerant Operation--See Aircraft Operation.

Jet Routes--A route designed to serve aircraft operations from 18,000 feet to 45,000 feet.

Large Air Traffic Hub--See Air Traffic Hub.

Localizer--See Instrument Landing System.

Local Operation--See Aircraft Operation.

Local Service Carriers--A subset of the certificated route air carriers which includes Allegheny Airlines, Frontier Airlines, Hughes Airwest, North Central Airlines, Ozark Air Lines, Piedmont Aviation, Southern Airways, and Texas International Airlines.

Long Range Navigation--A method of navigation that permits navigation over long distances. This is in contrast to the relatively short range navigation provided using the VOR system.

Marker--See Instrument Landing System.

Medium Air Traffic Hub--See Air Traffic Hub.

Microwave Landing System (MLS)--An instrument landing system operating in the microwave spectrum which provides lateral and vertical guidance to aircraft having compatible avionics equipment.

MLS--Microwave Landing System.

Mode C--See Altitude Encoding.

Nondirectional Radio Beacon--A radio beacon transmitting nondirectional signals whereby the pilot of an aircraft equipped with direction finding equipment can with direction finding equipment determine headings to or from the radio beacon and "home" on a track to or from the station.

Nonhub--See Air Traffic Hub.

NOTAMS--Notice to Airmen.

Notice to Airmen--A notice containing information concerning the establishment, condition or change in any component of, or hazard in the National Airspace System, the timely knowledge of which is essential to personnel concerned with flight operations.

Over--See IFR Over.

Passenger/Cargo Air Carrier--One of a class of air carriers holding Certificates of Public Convenience and Necessity issued by the Civil Aeronautics Board, authorizing the performance of scheduled air transportation of passengers and property over specified routes.

Personal Flying--See Primary Use.

Pilot--

- Student Pilot--A student pilot may not operate an aircraft that is carrying a passenger or that is carrying property for compensation or hire.
- Private Pilot--A private pilot may not act as a pilot-in-command of an aircraft that is carrying passengers for compensation or hire nor may a private pilot act as pilot-in-command for compensation or hire.
- Commercial Pilot--A commercial pilot may act as pilot-in-command of an aircraft carrying passengers for compensation or hire and act as pilot-in-command of an aircraft for compensation or hire.
- Airline Transport Pilot--An airline transport pilot may act as a pilot-in-command of an aircraft engaged in air carrier service.

Pilot Briefing--Information furnished a pilot to assist in flight planning. Principal items are weather conditions, notices to airmen, routes, and preparation and handling of the flight plan.

Positive Control--Control of all air traffic, within designated airspace, by air traffic control.

Primary Use--The use category in which an aircraft flew the most hours.

The nine use categories are defined below:

- Aerial Application--Any use of an aircraft for work purposes which concerns the production of foods, fibers, and health control in which the aircraft is used in lieu of farm implements or ground vehicles for the particular task accomplished. This includes the distribution of chemicals or seeds in agriculture, reforestation, or insect control; it excludes firefighting operations.
- Air Taxi--Use of an aircraft operating under Federal Aviation Regulations, Part 135. See also Air Carrier-Air Taxi.
- Business Transportation--Use of an aircraft not for compensation or hire by individuals for the purposes of transportation required by business in which they are engaged.
- Executive Transportation--Any use of an aircraft by a corporation, company, or other organization for the purposes of transporting its employees and/or property not for compensation or hire, and employing professional pilots for the operation of the aircraft.
- Industrial/Specialist--Any use of an aircraft for specialized work allied with industrial activity; excluding transportation and aerial application. (Examples: pipeline patrol; survey; advertising; photography; helicopter hoist; etc.).

- Instructional Flying--Any use of an aircraft for the purpose of formal instruction with the flying instructor abroad, or with the maneuvers on the particular flight(s) specified by the flight instructor.
- Personal Flying--Any use of an aircraft for personal purposes not associated with a business or profession, and not for hire. This includes maintenance of a pilot proficiency.
- Rental Aircraft--Aircraft owned for the purpose of renting out.
- Other--Any other use of an aircraft not included above.

Private Pilot--See Pilot.

Private-Use Airport--An airport which is not open for the use of the general public.

Privately-Owned Airport--An airport which is owned by a private individual or corporation.

Publicly-Owned Airport--An airport which is publicly-owned and under control of a public agency.

Public-Use Airport--An airport open to the public without prior permission, and without restrictions within the physical capacities of available facilities. May or may not be publicly owned.

Radar Altimeter--Aircraft instrument that makes use of the reflection of radio waves from the ground to determine the height of the aircraft above the surface.

Regional Carriers--A subset of the certificated route air carrier which includes Air Midwest and Air New England.

Registered Aircraft--Aircraft registered with the Federal Aviation Administration.

Rental Aircraft--See Primary Use.

RNAV--See Area Navigation.

Small Air Traffic Hub--See Air Traffic Hub.

Stolport--An airport specifically designed for STOL (Short Take-off and Landing) aircraft, separate from conventional airport facilities.

Student Pilot--See Pilot.



Supplemental Air Carrier--See Air Carrier.

Terminal Area--A general term used to describe airspace in which approach control service or airport traffic control service is provided.

Tower--See Airport Traffic Control Tower.

Transponder--The airborne radar beacon receiver/transmitter portion of the Air Traffic Control Beacon System that automatically receives radio signals from interrogators on the ground and selectively replies with specific reply pulse-on-pulse group, only to those interrogations being received on the mode to which it is set to respond. Each aircraft transponder is capable of replying to 4,096 codes as selected by the pilot. Provides the air traffic controller positive location and, in some cases, altitude information.

Trunk Carrier--A subset of the certificated route air carriers which includes American Airlines, Braniff Airways, Continental Air Lines, Delta Air Lines, Eastern Air Lines, National Airlines, Pan American World Airways, Trans World Airlines, United Air Lines, and Western Air Lines.

U.S. Flag Carrier or American Flag Carrier--One of a class of air carriers holding a Certificate of Public Convenience and Necessity issued by the Civil Aeronautics Board, approved by the President, authorizing scheduled operations over specified routes between the United States (and/or its territories) and one or more foreign countries. (See also Foreign Flag Air Carrier.)

VFR--Visual Flight Rules.

VFR Flight--Flight conducted in accordance with Visual Flight Rules.

VHF--Very high frequency.

VHF Communications--Provides radio voice communications between aircraft and ground stations, also between aircraft. Very High Frequency (VHF) is limited in range (line of sight) and usually used for air traffic communications.

VOR--Very high frequency omnidirectional radio range. Used as the basis for navigation in the National Airspace System.

VORTAC--A navigation aid providing azimuth and distance measuring equipment at one site.

Weather Radar--Provides the flight crew with visual display of weather that could contain turbulence. The system's primary function is to assist in turbulence avoidance, however, most airborne radar systems are also capable of terrain mapping.